The Orchadian

Volume 19, Number 8 June 2019

Official Journal of the Australasian Native Orchid Society Inc.

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Sarcochilus Effie Photo Peter Adams

The Orchadian

Official Journal of the Australasian Native Orchid Society Inc. Founded 1963

www.anos.org.au

Dedicated to the study and conservation of Australasian native orchids

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Please include your contact information for communication and publication.

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Personal membership is achieved by a subscription to *The Orchadian.* Members receive four issues a year and have full voting rights at the AGM.

ANOS Inc.
Notice of the Annual General Meeting (AGM)
Date: Friday 23rd August 2019
Time: 4 - 5 pm
Venue: Conference Hall
Address: Strathpine Community Centre,
199 Gympie Rd,
Strathpine, Qld.
All positions will be declared vacant.
Nominations for all positions are called for, and must be in the hands of the Secretary 7 days prior to the date of the AGM.
Forms are available at www.anos.org.au
Signed: R.A.Winch
Secretary

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Observation of orchids in their natural habitat is still one of the most important activities for ANOS members who have the capacity to 'go bush'. The early issues of *The Orchadian* included regular contributions of field trip reports, some to areas that now have altered landscapes due to clearance, development and changes in climate. Adverse orchid processes continue so the need to document details of remaining plants is becoming more urgent. Recent reports indicate easily visible extensive clearance of forested area in the mid–north coast of NSW eg. Camden Haven River area, and there is obvious loss of *D. tetragonum* habitat in *Melaleuca* swamplands along the greatly widened main north-south highway in that region.

Dendrobium teretifolium R. Br.

Some years ago, in the Camden Haven-Comboyne area there were some unusual forms of *D. teretifolium var. teretifolium*, sometimes available from a nursery. They had very narrow leaves, only about 2 mm wide, and small white flowers, only 3-4 to a raceme. I would value information from anyone who grows this form. The extent of its distribution is unknown and significant area may have been lost in the recent land clearances. In the last issue Gerry Walsh added more information on the variation and distribution of the *D. teretifolium* complex, and in this issue Grant Paterson has more observations and variants noted over years of field work in Queensland as far north as the Townsville region. Grant has evidence for an extension of range of var. *teretifolium* to the Mt. Morgan area, central Queensland and an unclassified variant in remote country north of Townsville. Both writers have recorded varieties occurring in different habitats rather than together, but there may be co-occurrence in areas not yet examined, or previously in the wide area of habitat that has been lost.

Rupp (J. Linn. Soc. NSW 60:155-159. 1935) saw a few plants of var. *fairfaxii* at Bulahdelah, and later along the Allyn and Paterson rivers where var. *teretifolium* on *Casuarina* and *D. fairfaxii* in rainforest grow close together, he found intermediates at the edge of rainforest. He also recorded "in few instances, flowers of both kinds were borne on the same plant". He concluded "that *D. fairfaxii* is the brush-forest form of *D. teretifolium*". I saw some of Rupp's variants on the Allyn River four years ago. It seems that more observations are needed to fully appreciate the distribution and variation of the *D. teretifolium* complex. Conservation is a key goal for ANOS and members are encouraged to record what is occurring in their region with respect to particular species and their habitat.

Other Features

In 2009 Hans and Christa Korth rediscovered *Caladenia pumila* in the Inverleigh Nature Conservation Reserve in western Victoria, leading to a research program to raise and reintroduce propagated plants. Neil Anderton, a prime mover in the project, describes some success in raising plants. *Paphiopedilum* and *Coelogyne* are usually associated with Asia, but they are represented in New Guinea, Australasian territory of ANOS. David James and Sheryl Lawson have compiled an annotated list of the species which should assist growers and judges who occasionally see these genera exhibited. Also off the mainstream are the non-classic style *Sarcochilus* hybrids based on smaller colourful flowering species. What they lack in classic round filled-in flower shape is made up by interesting colour, shapes, presentation and plant styles. The *S. australis* hybrids have inherited a pleasing unusual presentation of all flowers towards the viewer from this parent. In habitat, flowers face away from the tree trunk towards an unknown pollinator. I summarize about 30 years of rather slow breeding that has produced some quality plants in a different style.

Gippsland is an underappreciated centre for breeding and exhibiting some outstanding orchids, particularly dendrobiums. Phil Grech is a fine grower and breeder with a number of new *Dendrobium* registrations and he outlines some results of his program. Until recently, eastern Victorian plants were not considered for ANOS awards due to lack of a state judging panel. In 2018 the Victorian panel visited some Gippsland shows and saw some great plants, several receiving ANOS quality awards. Roslyn Capell has a short article on Bob Sullivan's *Cymbidium suave* and the method for growing it successfully in a polypropylene pipe.

Peter Adams

Allyn River habitat of *Dendrobium teretifolium* var. *teretifolium* and var. *fairfaxii.* Photo P. Adams

Dendrobium teretifolium var. *teretifolium* and *D. speciosum* var. *hillii* at Allyn River. Photo P. Adams

Dendrobium teretifolium var. *fairfaxii*. Photo P. Adams

Dendrobium teretifolium var. *teretifolium* green-yellow form. Photo P. Adams

President's Report

This is my last report as President, and I would like to thank all Council members who have served over the past three years, in particular Secretary Rick Winch and Treasurer David Brewster. I consider that the work of council over the last three years has strengthened the organisation in a number of areas. We have a usable and informative website maintained by Malcolm McGowan, and we have a world class journal, *The Orchadian*, thanks to our dedicated editor, Peter Adams. A regular newsletter to members and other orchid growers interested in Australasian orchids has been re-established, and we are organising the 2019 Strathpine conference and show with great support from ANOS KABI. The ANOS Judging Handbook has been updated, led by the National Registrar Dave Groffen. The ANOS awards are online and there is a downloadable hybrid register thanks to Keith Riseley. As the natural habitat continues to be destroyed at an alarming rate, the conservation officer Roslyn Capell has been keeping members up to date with issues especially in New South Wales. David James has the challenging task of Membership Secretary. Thanks also to our other councillors: Callyn Farrell who maintains our Facebook page, Barry Dudman and Tony Clarke.

There are many challenges to the ongoing viability of all orchid organisations – the general ageing of our group membership is one in particular. A number of older members have been no longer able to maintain their membership, but it is pleasing that there is a steady stream of new and some younger members. It is becoming more expensive to produce *The Orchadian* and many other journals are moving on-line, however we have heard from you that this is a change our members are not ready for at this time. Many younger people interested in Australian orchids are active as citizen scientists, particularly with terrestrial orchids, and are not necessarily linked to any organised orchid societies. There is also much support for terrestrial orchid research within several ANOS groups. I am sure the new council will continue to canvass ways to stay relevant and follow through with our charter. The organisation must adapt as society and culture change, or become less relevant.

Important Reminders

I hope that many of you are planning to attend Strathpine in August for the Show and Conference and looking forward to seeing you there. These events will only continue with the support of members. The Annual General Meeting will be held during this event and we would appreciate your attendance and participation.

Membership fees are due in June if you are paying yearly and the form is on the back of the cover sheet. Please attend to this promptly so that you receive the September issue of *The Orchadian*, and our Membership Secretary does not have extra work sending out reminders.

Please note that show dates for ANOS groups must be supplied by April 30 each year, or they may not be published in the June issue.

Correction

The plants awarded in the Ira Butler Trophies for 2018 had an incorrect owner listed in the last journal, so the results are repeated here in full.

Ira Butler Trophy for Champion Australian Hybrid: *Dendrobium* Jayden 'Sheen'. Owner Henk van den Berg.

Bill Murdoch Trophy for Champion Australian Species : *Dendrobium calamiforme.* Owner Emil Dallmer.

G. Hermon Slade Trophy for Champion Australasian Hybrid: *Dendrobium* Nancy Fairfax 'Leeann' . Owner Arnold Lockrey.

G. Hermon Slade Trophy for Champion Australasian Species: *Dendrobium spectabile* 'Patricia'. Owner Stephen Lee.

Sheryl Lawson

Caladenia pumila - Back From Beyond the Brink

Text and photographs by Neil Anderton
neil.anderton@aanet.com.au

One of the most exciting orchid finds in the Geelong region for many years was the rediscovery of *Caladenia pumila* in 2009, about 75 years after its last sighting and well after it was presumed extinct.
In this article I cover the history of *Caladenia pumila* from its discovery to its apparent demise, its subsequent rediscovery and the conservation activities, including protection of and threats to the wild population. The ex-situ propagation of *Caladenia pumila* at the Royal Botanic Gardens Victoria (RBGV), Melbourne is outlined.

The first collection of *C. pumila* R.S. Rogers was by Miss Bertha Pilloud, a schoolteacher in Bannockburn, in 1916 (SA State Herbarium Cat. No. AD9705518). Originally described by Rogers (1922), the holotype was collected by E.E. Pescott in September 1921 from 'Port Phillip Bay, west Bannockburn'. All other herbarium specimens are described as being from 'Bannockburn'.
The last State Herbarium specimens are dated 1926. There are two in Melbourne, one collected by Miss B. Pilloud, the other by W.H. Nicholls, and one in Sydney (duplicate of the Melbourne collection by Nicholls). The last known specimen was submitted by W.H. Nicholls in 1933 and is held by the University of Melbourne Herbarium.

Nicholls (Our Rarer Orchids, *Vict. Nat.* Vol XL1X, 50-52) quotes Miss B. Pilloud, indicating that it was abundant:

'I wish you could pay a visit to our district, and see for yourself the hillsides, whereon this white spider grows. I am sure you would be delighted with the sight.'

In the same article, the Rev. H.M.R. Rupp was quoted as seeing *C. pumila* at the 'foot of Dog Rocks, near Geelong (Victoria) many years ago'. Nicholls also mentions a report that a specimen was collected near Yarram, 'a few seasons ago'.

While there is strong anecdotal evidence that it was found at Dog Rocks, near Geelong, and possibly at Yarram in Gippsland, no specimens were submitted from these populations. I have been unable to find any reference to sightings of *C. pumila* after the Nicholls collection in 1933. When we put out a press release after the orchid was rediscovered asking for anyone with information about the orchid, we had the following response:

'..... She remembers it being a much smaller stem than the green orchid (Caladenia tentaculata?) *– she thought at the time that it was an albino green spider orchid. She found it in Harvey's grassland paddock opposite her childhood home in Stephens Road about the time of WW11.'*

While this report is not conclusive, it is a reasonable description of the orchid and from the right area – especially from someone only familiar with greencomb spider orchids.

However, by the turn of the 21st century, it looked like *Caladenia pumila* was just a footnote in history – yet another Australian species condemned to extinction. However on September 16th 2009 Hans and Christa Korth found a strange spider orchid in the Inverleigh Nature Conservation Reserve (NCR), 30 km west of Geelong. Two plants were found about 1 cm apart, one in bud, the other just opening. Hans and Christa did not realize what they had discovered, but knew it was quite different from any other spider orchid they had seen and took photos as one of the buds was opening. Before leaving, they protected the plants with a nest of twigs and branches. This action prevented the flowers from being grazed overnight, as the area is subjected to heavy grazing pressure. The Korths showed quite a few people the photos of the orchid in an attempt to get it identified, and news of the "new spider" circulated rapidly. I was shown a photo of it while on an orchid outing at Won Wron State Forest in Gippsland two days later. Once someone realised the identity of the orchid, the Department of Sustainability and Environment (DSE – now Department of Environment, Land, Water and Planning, DELWP) was notified. Attempts were

made to keep the location of the orchid secret, but by this stage it was a forlorn hope. Within days, news of the discovery, with photos and where it was found were on the web. Attempts by DSE to get this information removed were only partly successful.

Conservation Efforts since 2009

Once the plants were identified, protection became critical and many already knew about the find. Initially twigs and branches protected them from grazing, then a small chicken wire cage, followed by a more substantial cage (with a "Do Not Remove" sign). Physical protection was required to protect the plants from humans (especially photographers), grazing animals, choughs and echidnas.

As a temporary measure, the immediate area (about 20 x 20 m) was protected by a 1 m high chicken wire fence with the small cage remaining in place.The majority of the grassland containing the plants – an area about 100 x 100 m – was fenced in May 2010. The enclosure has two 4 m gates so that it can be opened up to grazing over summer. This grassland had earlier (1990s) been earmarked for fencing to protect Clover glycine (*Glycine latrobeana*) and Hairy-tails (*Ptilotus erubescens*) from grazing. Fencing the area has addressed multiple concerns.

Once the plants had been physically protected, pollination of the flowers, collection of fungus and harvesting of the seed began with the aim of establishing an *ex situ* population and seed bank at the RBGV Melbourne and eventually reintroduction to the wild.

About two weeks after the plants were found, a collar slice was taken from one plant for fungal isolation. One or more of the multiple pollination attempts was successful, as seed pods developed. After about 4 weeks, the seed pods were 'bagged' to prevent loss of seed if the pods dehisced before expected. Pods appeared to develop correctly, but at maturity only one contained seed. The seed was collected, dried and stored at the RBG for *ex situ* propagation attempts.

The fungal isolation was successful, with a "good" looking fungi culture (similar to isolates from other spider caladenias). The fungus, *Sebacina vermifera* complex, is closely related to that from other spider caladenias (M. Wright, pers. comm..). Seed was sown to this fungus (RBG and DSE Horsham) and asymbiotic propagation was also tried. Unfortunately, the fungal isolation failed to germinate *C. pumila* seed, and asymbiotic germination was also unsuccessful. This may be due to the fungus

Woodland habitat of *Caladenia pumila*.

being collected at flowering time (which may have been too late to isolate fungus that will germinate seed), or to low seed viability.

Once the plants had senesced, there was an anxious wait – would they reappear in 2010? On the 3rd May 2010, two leaves made an appearance - much to everyone's relief! Both plants have re-emerged each year since discovery – except 2017 when neither emerged. Emergence time has been quite variable, from early May (2010) through to mid-July (2011). The orchids did not flower in 2011 after the late emergence.

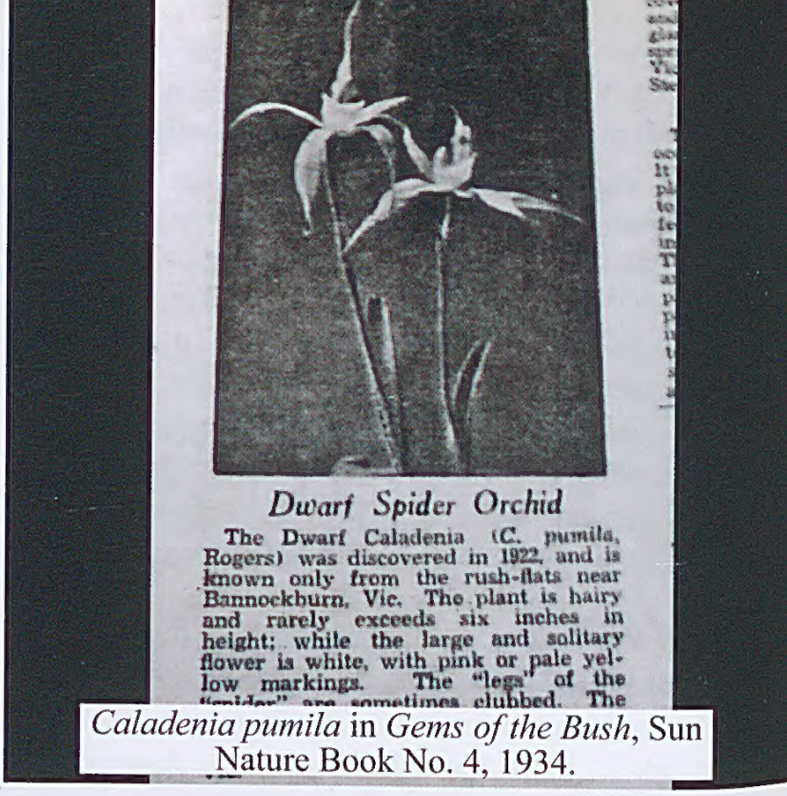
Although both plants have emerged each year except 2017, flowering has been variable. Both plants flowered in 2010 and 2014, one flowered in 2012, 2013 and 2015 and none flowered in 2011, 2016 and 2018. Both flowers were cross pollinated in 2010 and 2014 and the single flower was self-pollinated in 2012 and 2013. In 2015 the flower was not pollinated and collected as an herbarium specimen. Seed was collected in 2009, 2010, 2012, 2013 and in 2014 seed was collected from both plants.

Propagation in the Laboratory

Based on the close similarity of the *C. pumila* fungus to the fungus isolated from the Inverleigh Spider Orchid (*Caladenia* 'Inverleigh' or *C.* sp. aff. *fragrantissima*), and the fact that the *C.* 'Inverleigh' fungus is extremely good at germinating its own and other Spider *Caladenia* seed, germination of *C. pumila* seed with *C.* 'Inverleigh' was tried.

In late 2010, germination trials commenced with *Caladenia pumila* seed and Inverleigh Spider Orchid (ISO) fungus. Although the experiment suffered from excessive contamination, the ISO fungus did germinate *C. pumila* seed. Subsequent seed sowings were successful, with the ISO fungus germinating the *C. pumila* seed, though not well, possibly due to low seed viability. *Caladenia* 'Inverleigh' seed was sown with the ISO fungus at the same time, as a positive control, and had a high germination rate. The 2010 sowings led to the deflasking of approx. 30 seedlings, although most were in very poor condition and died over the next few months. Six seedlings continued to grow throughout the year with 3 or 4 looking quite healthy. The 2011 sowings had a low germination percentage, but unfortunately the seedlings were ready for deflasking in the middle of the 2012 summer. The seedlings were left in the flask until March, when the weather was cooler, but many were past their prime. Twenty eight seedlings were deflasked in good condition and continued to grow through winter and spring.

Pilloud herbarium specimen 1926, Royal Botanic Gardens, Melbourne.

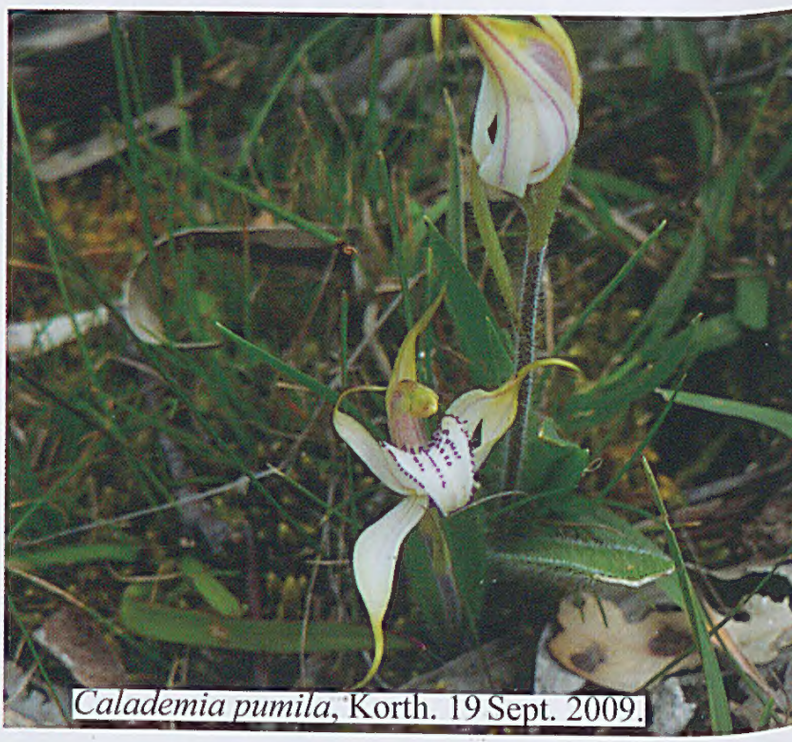


Dwarf Spider Orchid

The Dwarf Caladenia (C. pumila, Rogers) was discovered in 1922, and is known only from the rush-flats near Bannockburn, Vic. The plant is hairy and rarely exceeds six inches in height; while the large and solitary flower is white, with pink or pale yellow markings. The "legs" of the

Caladenia pumila in *Gems of the Bush*, Sun Nature Book No. 4, 1934.

Calademia pumila, Sept. 2009.



Calademia pumila, Korth. 19 Sept. 2009.

Caladenia pumila, cage protection.

Caladenia pumila leaf emergence 3 May 2010.

One of the seedlings sown in 2010 reappeared in July 2012. The number of *C. pumila* plants had increased by 50%. In the autumn of 2013, we waited with bated breath – would the seedlings reappear? On the 7th May two tiny green shoots appeared in the pots – the plant that re-emerged in 2012 was back, with another from 2012 deflasking. Over the next few weeks, more seedlings appeared, until seven had emerged. Unfortunately, the emergency watering regime at the RBG failed while the nursery technician was on leave and I was attending the 7th ANOS Conference at Strathpine in late August 2013. This caused the pots to dry out and the plants to senesce very early. In 2014, only two of the seven seedlings emerged.

Seedlings from seed sown in early 2014 were deflasked in winter 2014. Eighteen seedlings emerged in 2015, and in 2016, 17 seedlings emerged after dormancy, though half were very small. One plant was quite tall, about 80 mm in early July, with others around 40mm high. None flowered in 2016 but one was getting close. In 2017 the leaves started to emerge in early March, with the largest leaf already well advanced by mid-May, and by 1st August there was a bud. Success! By mid-September we had the first *Caladenia pumila* flowering in cultivation after eight long years. Unfortunately the orchid either didn't produce any pollen or it was removed by an insect before we could self-pollinate the flower. The year had been very successful – a flower and some leaves that looked promising for the next year – unfortunately some of the weaker plants had not survived.

In 2018 leaves appeared in mid to late April, with the largest three looking big enough to produce flowers. By mid-June, 10 seedlings had emerged, though a couple looked weak. By the 27th June, buds could be seen in three of the plants, with a possible bud in a fourth leaf. By early July there were four buds when we were only expecting three to be big enough to flower. Chris Jenek, the nursery technician in charge of the orchid collection at the RBGV Melbourne and I were both going to be away in the month prior to flowering, so the *C. pumila* pots were transferred to the RBGV Cranbourne Orchid Conservation nursery where they could be closely monitored. The three largest plants flowered and were cross pollinated. The fourth bud had failed to develop. All three developed pods and produced seed.

In July, Dr Noushka Reiter (RBGV Cranbourne) obtained a fungal isolate from one of the smaller plants in cultivation. Seed that had been collected from the wild plants was sown and inoculated with this fungal isolate. As before, viability of the seed was low, but some seedlings have been produced – the first from fungus isolated from *C. pumila*. Seed from the cultivated plants has been sown with this fungus but it is too early to tell if it will germinate. The propagation work for *C. pumila* has been transferred to the RBGV Cranbourne Orchid Conservation Program.

Threats facing *Caladenia pumila*

A major threat is low genetic diversity. Only two plants are known, therefore a very small gene pool.

The original range occupied by *C. pumila* was of the order of 100 km^2 – the current range can be covered by a five cent piece. Almost all of its previous range is either farmland or housing – there are limited places to reintroduce the orchid. The only potential sites for reintroduction would be within existing reserves - the *Caladenia pumila* Working Group will be assessing potential reintroduction sites over the next couple of years.

What is the best area for reintroductions? There is very little specific information about its original habitat – a lot of informed guesses and assumptions, and some information is contradictory. Can we assume that its current habitat is the optimal habitat? Is it the only remaining suitable habitat?

Global warming is another major threat. The southwest region of Victoria is one area predicted to suffer reduced rainfall, which is very obvious even now. Of particular concern is the greatly reduced rainfall in autumn and spring – critical times for leaf emergence and seed pod development. It is quite possible that areas once suitable for reintroductions are now too dry to support the orchid. Weeds and invasive endemic species are another problem. Introduced grasses,

Calademia pumila first flower in cultivation 14 Sept.2017

Caladenia pumila bud 17 July 2018.

Caladenia pumila in habitat 2012.

Caladenia pumila in bud, cultivated plant 22 Aug. 2017

Caladenia pumila advancing bud, cultivated plant 29 Aug. 2017.

Caladenia pumila cultivated plant, Royal Botanic Gardens, Cranbourne.

broadleaf weeds and invasive endemics such as *Acacia paradoxa* (Prickly Hedge Wattle) are the main threats.

In 2013, ANOS Geelong, with the support of ANOS Victoria and the Friends of Inverleigh Flora and Fauna Reserve, were successful in applying for a 12 month Communities for Nature (CfN) grant.

Last year, ANOS Victoria obtained a multi–year grant for *Caladenia pumila* conservation. The grants covered weed control by hand weeding, spot spraying and use of grass-specific herbicides, and *A. paradoxa* control by grooming outside the enclosure and hand removal within. Parks Victoria have supplemented the funds for *A. paradoxa* grooming - approx. 10 ha around the enclosure has been groomed. Grazing and incidental damage by animals has been addressed by fencing and caging the plants. Grazing can be by mammals, birds and insects, while animals such as echidnas can also inadvertently dig up tubers in their search for ants and termites. Choughs are a particular risk as they actively seek and dig up orchid tubers

An unexpected threat was potential zinc contamination of the site from the galvanised plant cage. In 2016-17 the moss around the plants had noticeably thinned. This was a concern as the orchids hadn't flowered in 2016, and did not emerge in 2017. A check of the literature soon showed that zinc solutions are often used to control moss, which meant that the galvanised wire cage protecting the *C. pumila* plants in the wild could be harmful. Analysis of the soil near the wire cage showed higher levels of zinc and elevated iron levels in the soil. The galvanised cage was replaced by a slightly bigger stainless steel cage and fresh moss was transferred to the area around the plants.

In 2018, we anxiously waited for the appearance of the leaves and were rewarded by the appearance of two *Caladenia pumila* leaves in mid-June. The summer and early autumn had been extremely dry, and the plants emerged later than expected. Our limited experience with *C. pumila* suggests that if it doesn't emerge by mid May, it will not flower. As expected, the plants did not flower in 2018 but both leaves appeared to be very healthy, as was the transplanted moss.

While the situation for *Caladenia pumila* is still extremely precarious, having plants in cultivation producing seed and the opportunity to establish an *ex situ* seed 'orchard' at RBGV Cranbourne offers hope for the continued survival of the species and establishing new populations in the wild.

Acknowledgements:

Thanks to the *Caladenia pumila* Working Group.

Support and/or funding from the following organisations is gratefully acknowledged:

Victorian Government: Communities for Nature Grant (2013-14).

DSE (then DEPI now DELWP): funding and overall management.

Parks Victoria: funding and on-ground management.

ANOS Victoria: Volunteer help for searches, preparation of grant proposals.

ANOS Geelong: Volunteer help for searches, preparation of grant proposals and managing CfN grant.

Friends of Inverleigh FFR: Volunteer help.

Neil Anderton is strongly active in terrestrial orchid conservation in Victoria and will present a talk at the 2019 ANOS Conference in Strathpine, Brisbane in August.

The Search for Australasian *Coelogyne*

David James and Sheryl Lawson
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Summary

Eleven *Coelogyne* species have been identified within ANOS defined boundaries in the Papuasian and Southwestern Pacific regions. ANOS boundaries pass through countries and islands, making it impossible in some instances to determine whether some species are ANOS eligible for judging due to the limited available information on distribution.

Introduction

Coelogyne is a large genus of Asian orchids, distributed from India and Sri Lanka, the Malay Archipelago, Philippines, New Guinea and the south west Pacific Islands. The name is derived from the Greek *koilos* (hollow) and *gyne* (female), referring to the concave stigma. There are around 200 described species and they grow in habitats of tropical lowland forest to montane forests, from sea level to 3000 m. They are usually epiphytic or can be lithophytic, rarely terrestrial. All species have four pollinia. The genus is divided into subgenera and sections. Flowers are often fragrant and pollinated by bees, wasps and beetles. The typical colour range is white, through tawny brown to green, and occasionally peachy tones. In China and Nepal the pseudobulbs of some species are used medicinally.

Distribution

There are no *Coelogyne* species indigenous to Australia, and *Coelogyne* species and hybrids are not plants that initially jump out at you as Australasian orchids. How many Australasian *Coelogyne* species occur naturally within the area defined by ANOS boundaries, and how do you find out? The species occurring in New Guinea are generally easy to identify, but a number of species occur on extended island systems close to the ANOS boundary, and their occurrence on specific islands is not always clear. If an orchid species occurs naturally on an island cut through by the ANOS boundary how do we deal with this?

The main problem is determining the natural distribution of species in the north-western section of the ANOS defined region. Here the boundary cuts through islands and geographic and/or geopolitical areas such as the Maluku and the Lesser Sunda Islands. Information about species does not always include detailed distribution information. There are a number of species distributions listed as Maluku, a region which includes Halmahera, Bacan Islands, Sula Islands, Obi Islands and Buru, which are outside the ANOS boundary. The ANOS boundary also cuts through the islands of Seram, Ambon, Wetar and Timor. To complicate the issue some authorities do not include the Barat Daya Islands, Leti Islands, Sermata Islands, Babar Islands and Tanimbar Islands as part of Maluku, but consider them to be part of the Lesser Sunda Islands.

Ormerod (2011) lists six species: *Coelogyne asperata*, *Coelogyne beccarii*, *Coelogyne carinata*, *Coelogyne fragrans*, *Coelogyne susanae* and *Coelogyne veitchii*. Clayton (2002) has distribution maps for *Coelogyne* sections, but not individual species. The individual species descriptions include natural distributions but this means searching the distribution text for 72 species, subspecies or varieties, plus an additional nine from a section where the map did not indicate that the species occurred naturally within the ANOS region but the text did.

The advanced search in the World Checklist of Selected Plant Families (WCSP) allows you to search for a genus occurring within a TDWG (The International Taxonomic Database Working Group's World Geographical Scheme for Recording Plant Distributions) distribution level. These TDWG distribution levels are continents, regions and botanical countries in refinement progression from largest to smallest. There are three regions wholly within the area defined by the ANOS boundary being Papuasia (region 43), Australia (region 50) and New Zealand (region 51). The region of Australia includes Lord Howe Island (NFK-LH) and Norfolk Island (NFK-NI). The majority of one of the TDWG distribution levels, the Southwestern Pacific (region 60), is within the defined by

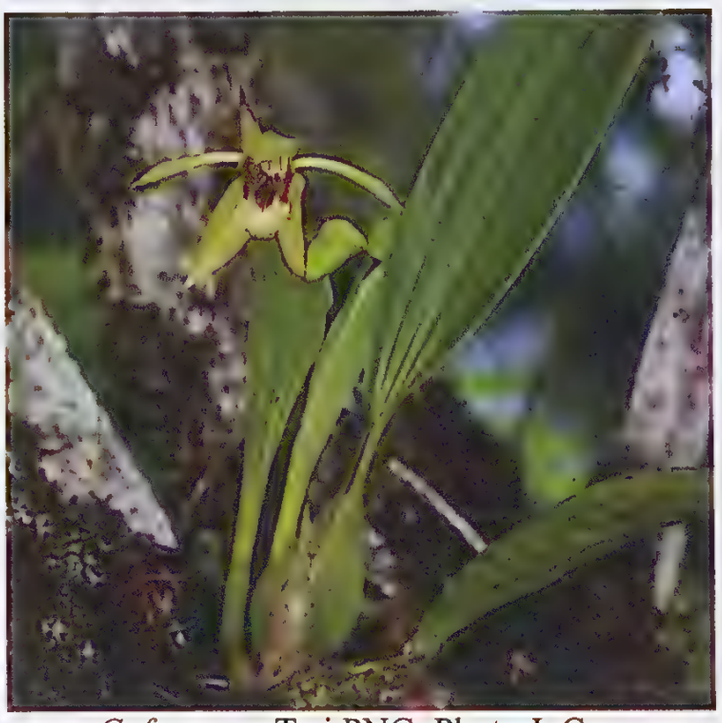
C. asperata ex Mt Hagen Photo J. Cara

C. asperata ex Mt Hagen Photo J. Cara

C. beccarii Tari, PNG Photo J. Cara

C. carinata Tari, PNG Photo J. Cara

C. fragrans Photo Gary Yong Gee



C. fragrans Tari PNG Photo J. Cara

the ANOS boundary. The exceptions to this are the botanical countries of Howland and Baker Islands (HBI) and Niue (NUE). There are two botanical countries in the Subantarctic Islands (region 90) that fall within the ANOS boundaries being Heard and McDonald Islands (HMD) and Macquarie Island (MAQ). The very south-eastern part of the large Malesia region (region 42) is cut by the ANOS boundary so the search has to be refined in this region. Malesia includes the botanical countries of Christmas Island (XMS) and Cocos (Keeling) Islands (CKI) which are wholly within the ANOS boundaries. This leaves two botanical countries of the Lesser Sunda Islands (LSI) and Maluku (MOL) in the Malesia region which are partially within the ANOS boundaries. The result of the WSCP search for the Lesser Sunda Islands and Maluku was 13 different species or subspecies that occur naturally in these botanical countries. Two of these naturally occur within the region of Papuasia. This left eleven species to check if they occurred within the ANOS boundary which cuts though the Lesser Sunda Islands and Maluku. The specific islands that the *Coelogyne* species naturally occur on determines whether they are within the ANOS region.

ANOS Eligible Species

WSCP searches that produced results for indigenous *Coelogyne* species were for the regions of Papuasia and Southwestern Pacific, and the botanical countries of Lesser Sunda Islands and Maluku. Using these searches, the following *Coelogyne* species appear to be confirmed within the ANOS boundary. Sections used are as per Clayton (2002).

Coelogyne asperata Lindl. 1849
Section *Verrucosae*
Malaysia to Santa Cruz Islands including Maluku, New Guinea (the island and adjacent islands), Bismarck Archipelago, Solomon Islands.

Found from sea level to around 2000 m in riverine or hill forest on open limestone rock faces or near waterfalls and in swamp forests up to 1900 m altitude. Pendulous racemes, 6–35 flowers. Can flower through the year with flushes in January and April to July. Requires intermediate conditions.

Coelogyne beccarii Reichb.f. 1886
Section *Speciosae*
New Guinea, Bismarck Archipelago, Solomon Islands. Epiphyte in montane forest up to 1400 m. Flowering is throughout the year. Requires intermediate conditions.

Coelogyne carinata Rolfe 1895
Section *Speciosae*
Sulawesi to Solomon Islands including New Guinea, Bismarck Archipelago. Found at 100–3000 m in lowland and montane forest. Flowering January to October.

Coelogyne calcarata
Section *Bicellae*
Maluku (Seram). Found at 2000–2500 m in montane forest and on limestone. Flowering July

Coelogyne fragrans Schltr. 1911
Section *Speciosae*
Found in New Guinea at 100–3000 m. Flowering January to October. Warm to intermediate growing.

Coelogyne lycastoides F.Muell and Kraenzl. 1895
Section *Speciosae*
Found in Vanuatu, New Caledonia, Fiji, Tonga, Samoa. Found at 300–1500 m in lowland rainforest and open woodland. Flowering January to August.

Coelogyne macdonaldii F.Muell and Kraenzl. 1894
Section *Speciosae*
Vanuatu, Fiji. Found at 300–1100 m on ridge tops in lowland rainforest and lower montane forest. Flowering September to March.

Coelogyne miniata (Blume) Lindl. 1833
Section *Hologyne*
Sumatra to Lesser Sunda Islands, New Guinea (New Guinea is listed in WCSP but not Ormerod)

Found at 1000–2400 m on branches of trees in

C. fragrans Tari PNG Photo J. Cara

C. macdonaldii Photo Gary Yong Gee

C. macdonaldii Photo Gary Yong Gee

C. miniata Photo Gary Yong Gee

C. rumphii Photo Gary Yong Gee

C. rumphii Photo Gary Yong Gee

lower and upper montane forest. Flowering June to possibly as late as September.

Coelogyne rumphii Lindl. 1854
Section *Speciosae*
Maluku (Ambon, Buru, Seram). In riverine forests, 100–1100 m. Summer flowering, 2-6 flowers per raceme.

Coelogyne susanae P.J. Cribb and B.A. Lewis 1991
Section *Speciosae*
Bismarck Archipelago and Solomon Islands. Found from sea level to 1250 m in lowland rainforest. Flowering April to January. Intermediate conditions.

Coelogyne veitchii Rolfe 1895 (monotypic)
Section *Veitchiae*
New Guinea and Solomon Islands. Found at 600–1700 m. Flowers January to September. Intermediate conditions.

Coelogyne Species with Possible ANOS Eligibility

Coelogyne foerstermannii, *Coelogyne rochussenii*, *Coelogyne sanderiana* and *Coelogyne trinervis* have naturally occurring distributions according to the WCSP and/or Clayton 2002 as the Sunda Islands, Lesser Suda Islands and/or Maluku. This means these species may occur within the ANOS boundary depending on which of the many Maluku islands or Sunda islands they occur.

Hybrids

Up to September 2018 there are no *Coelogyne* hybrids registered from exclusively ANOS eligible species.

Acknowledgements

Thanks to Graham Corbin for checking OrchidWiz for hybrid registrations.

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www.orchidsofnewguinea.com

David James is an ANOS Councillor and the ANOS Judging Registrar for Queensland.

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Australasian *Paphiopedilum*

David James and Sheryl Lawson
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Photos by Gary Yong Gee

Summary

Based on a search of the literature, seven species, some specified at varietal level only, appear to be within the complex ANOS distribution boundaries.

Introduction

The genus *Paphiopedilum* extends from India eastward across southern China to the Philippines and through south-east Asia and the Malay Archipelago to New Guinea and the Solomon Islands. The name derives from Paphos, the birthplace of Aphrodite on Cyprus, and *pedilon*, from the Greek meaning sandal or slipper. It is in the subfamily Cypripedioideae which also contains *Cypripedium*, *Selenipedium*, *Phragmipedium* and *Mexipedium*. There is intense interest in the genus, much taxonomic uncertainty and many committed but sometimes heartbroken growers who struggle with the more finicky species. Fortunately, many desirable species are now available through artificial propagation. The majority of species grow in lower montane evergreen or seasonally deciduous forest, often on the forest floor in shade. In many areas, rainfall is seasonal, and the plants must survive considerable dry periods, helped by their thick coriaceous leaves. Species may be single flowered or have multiple flowers on an inflorescence, and the size of flowers is variable. The colour range is wide, from white to yellow, green, brown, purple, red and various combinations. Flowers may be striped, warty, glossy, or have hairs, creating spectacular effects. Taxonomically the species can be divided into subgenera and sections. Culture is from cool to warm growing depending on the species.

Paphiopedilum species and hybrids may not be thought of as Australasian orchids by many growers. However, a plant of *Paphiopedilum mastersianum* 'Yondi' owned by Sid Batchelor (Award number 64, illustrated) was awarded AM/ANOS in 1997 (81.4 points). It is the only Australasian *Paphiopedilum* with an ANOS award. How many species occur naturally within the ANOS boundary and could therefore be exhibited on ANOS show benches?

Paul Ormerod (2017) states that there are at least four species in New Guinea, with 'rumours' of a couple more to be found. Advanced searches of the World Checklist of Selected Plant Families (WCSP) for *Paphiopedilum* species covering the ANOS region were done. The International Taxonomic Database Working Group's World Geographical Scheme for Recording Plant Distributions (TDWG) retrieved twelve records from the Lesser Sunda Islands, Maluku and Papuasia. Other localities returned no results. The five records for the Lesser Sunda Islands and Maluku were then further analysed, as the ANOS boundary runs through the Maluku Islands and Timor, which is the eastern-most of the Lesser Sunda Islands.

Distribution

From the literature search, the following seven *Paphiopedilum* species, some further specified as varieties, appear to occur within the ANOS boundary:

Paphiopedilum bullenianum var. *celebesense* (Fowlie and Birk) P.J. Cribb 1987
Section *Barbata*
Sulawesi and Ceram (now known as Seram) (Cribb 1998) or Sulawesi to Maluku (Seram) (WCSP). Grows at around 950 m.

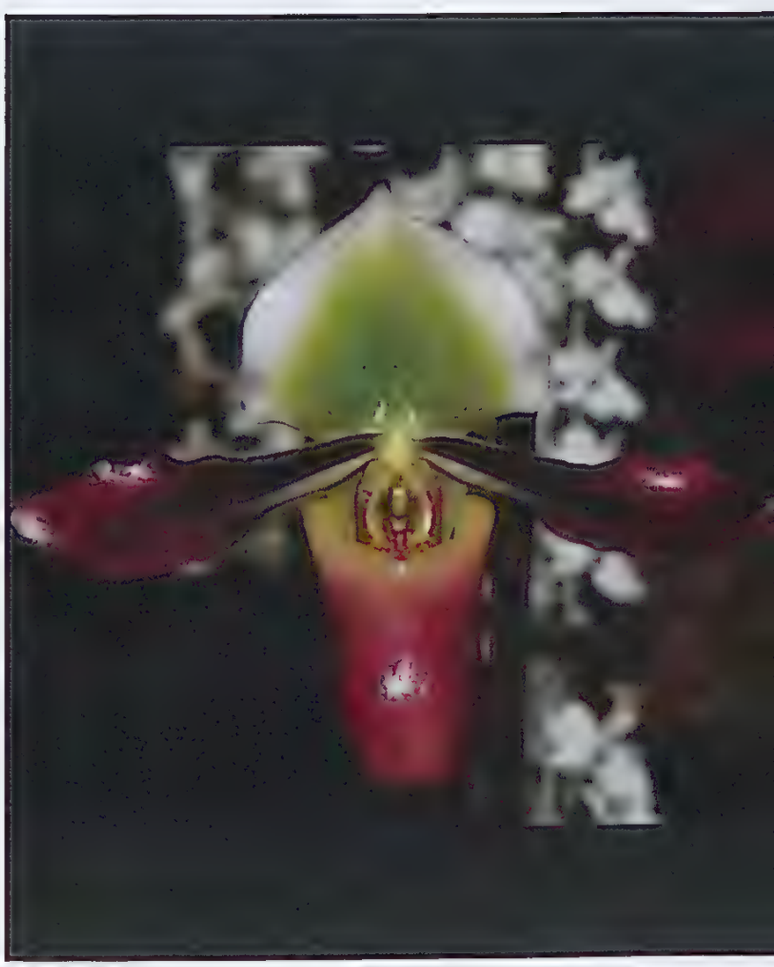
Paphiopedilum glanduliferum (Blume) Stein 1892
Section *Coryopedilum*
North-western New Guinea (island of New Guinea not country of Papua New Guinea) and adjacent islands (Misool, Salawati, Jobi and Waigeo). Terrestrial on limestone cliffs close to the sea, sometimes epiphytic, altitude usually 0-200 m. Warm growing, flowers February and June.

Paphiopedilum mastersianum (Rchb.f.) Stein 1892 var. *mastersianum*
Section *Barbata*
Maluku (Ambon, Buru). Buru is west of the island of Ambon. The ANOS boundary passes through Ambon.

Paphiopedilum violascens.

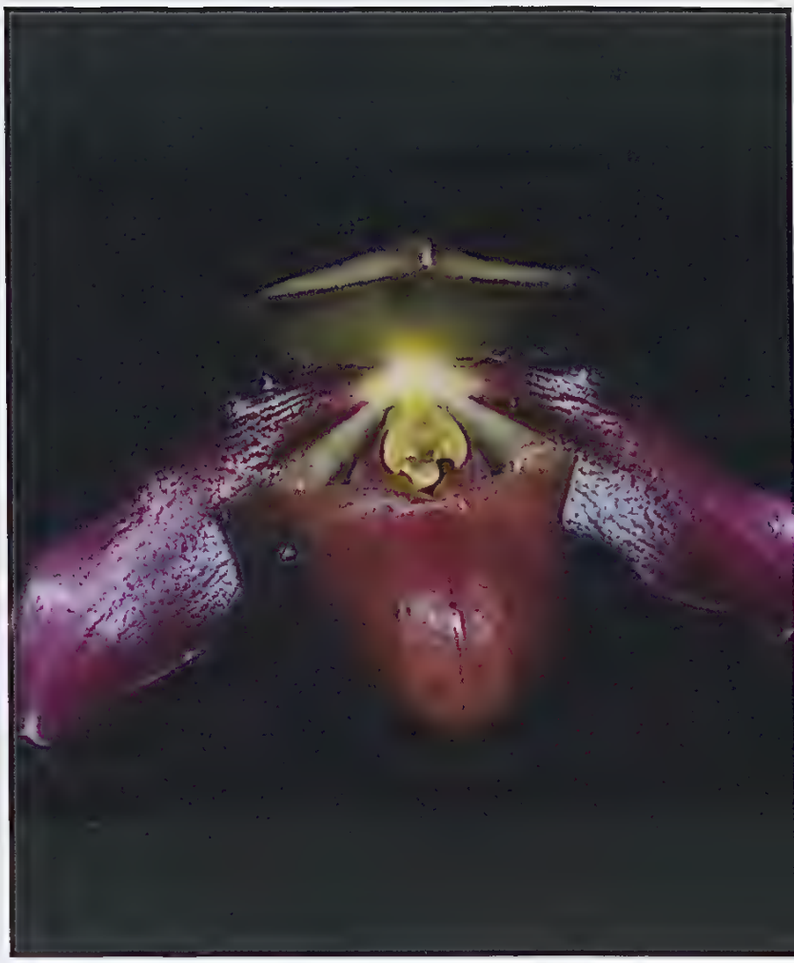
Paphiopedilum violascens.

Paphiopedilum glanduliferum.



Paphiopedilum mastersianum.

Paphiopedilum papuanum.



Paphiopedilum wentworthianum.

Paphiopedilum wilhelminae.

Paphiopedilum wilhelminae.

Paphiopedilum papuanum (Ridl.) L.O. Williams 1946
Section *Barbata*
Highland New Guinea, 800–1700 m altitude.

Paphiopedilum violascens Schltr.1911
var. bougainvilleanum (Fowlie) Koop. 1995, var. *saskianum* (O. Gruss & Roeth) Koop. 2000 and var. *violascens*
Section *Barbata*
All varieties occur naturally within the ANOS region.

Paphiopedilum violascens var. *bougainvilleanum* has been described as *Paphiopedilum bougainvilleanum* Fowlie 1971, but this is not accepted by the WCSP.
var. bougainvilleanum– Solomon Islands (North Solomons) (WSCP) or Bougainville only (Cribb 1998), 1100–1850 m.
var. *saskianum* – Solomon Islands (South Solomons) (WSCP)
var. *violascens* – North and east New Guinea to Bismarck Archipelago (Manus Island), 200–1200 m.

Paphiopedilum wentworthianum Schoser and Fowlie 1968
Section *Barbata*
Solomon Islands (WCSP) or Bougainville and Guadalcanal (Cribb 1998). 900–1800 m. It is listed as critically endangered on the IUCN Red List of Threatened Species with an estimated 100–200 mature plants left in the wild.

Paphiopedilum wilhelminae L.O. Williams 1942
Section *Coryopedilum*
Central New Guinea (WCSP) or west and east New Guinea highlands (Cribb 1998). 1200–1800 m.Terrestrial in montane grassland on limestone, also on almost pure limestone rubble.

ANOS Eligible Hybrids

There is one identified registered hybrid with parentage exclusively from the ANOS region, *Paph.* Baby Gland (*wilhelminiae* × *glanduliferum).*

The International Orchid Register only registers orchids used in hybrids at species level. This creates complexity and uncertainty for possible ANOS eligible hybrids, particularly when taxonomy changes or is contentious. Currently *Paphiopedilum bullenianum* var. *celebesense* is ANOS eligible, but not var. *bullenianum*. *Paphiopedilum mastersianum* var. *mastersianum* occurs naturally within the ANOS region but var. *mohrianum* does not. As of 24 January 2019 The International Orchid Register (RHS) considers *Paphiopedilum* × *mohrianum* to be a natural hybrid (*bullenianum* x *javanicum*), not a variety of *Paphiopedilum mastersianum* as the WCSP does (WCSP currently considers *Paphiopedilum mohrianum* to be a synonym of *Paphiopedilum mastersianum* var. *mohrianum*).

We consider that hybrids registered with *Paphiopedilum bullenianum* or *Paphiopedilum mastersianum* in the parentage cannot be considered to be ANOS eligible as it would have to be known which variety of the species was used in the hybrid. Therefore *Paph.* Jane Culver (*bullenianum* × *mastersianum*) and *Paph.* John Doherty (*mastersianum* × *violascens*) cannot be considered to have parentage exclusively from the ANOS region.

The International Orchid Register currently does not consider *Paphiopedilum bougainvilleanum* to be a synonym of *Paphiopedilum violascens* var. *bougainvilleanum* so registered hybrid names exist with *Paphiopedilum bougainvilleanum* as a parent. It also currently does not consider *Paphiopedilum praestans* to be a synonym of *Paphiopedilum glanduliferum*, so registered hybrid names exist with *Paphiopedilum praestans* as a parent.

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www.orchidsnewguinea.com

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Breeding Non-Classic Style *Sarcochilus* Hybrids Using *Sarcochilus australis* (Lindl.) H.G. Reichb.

Text and Photos Peter Adams
gallangowan@optusnet.com.au

Summary

Sarcochilus australis breeding commenced in 1963, led by Ira Butler, with at least 23 hybrids now registered. In contrast to hybrids based on *S. hartmannii*, *S. fitzgeraldii* and *S. falcatus,* they are classified as non-classics, with strong contributions from smaller species that have a range of shapes and colours. *Sarcochilus australis* hybrids have a variety of shapes, potential for several different colours and the flowers tend to be more open, presenting well and facing the viewer, on pendulous racemes with relatively high flower counts for small compact plants. There have been some quality awards and there are good prospects for further breeding.

Introduction

Classic round-flowered *Sarcochilus* hybrids are the mainstream in the *Sarcochilus* world with a trend towards introducing various colours from generally smaller 'twig' epiphyte species. The 'classic' species are considered to include *S. hartmannii*, *S. fitzgeraldii* and *S. falcatus*. Other species are usually considered to be non-classic even if flower shape is rounded, such as the small flowered *S. weinthalii*.

Non-classic hybrids may be described as plants that show features of the smaller species, often with narrow segments and colour combinations including yellow, green, orange, brown, red and purple. The tepals do not form a filled-in shape and may resemble twig epiphytic species with respect to the orientation of the tepals. The old term 'novelty' is to be avoided – they are neither new nor novel. Hybridisation was begun by Ira Butler in 1963 with *S.* Canary (*S. ceciliae* x *S. falcatus*), followed by *S.* Phyllis (*S. ceciliae* x *S. falcatus*) in 1965, and *S.* Lois (*S. ceciliae* x *S. hartmannii*) and *S.* Minuet (*S. hillii* x *S. hartmannii*) in 1966. The first hybrid using *S. australis* was *S.* Shooting Star (*australis* x *hartmannii*) made by Ira Butler in 1972. There has been little focus on recording breeding results, and the best known *S. australis* hybrids are probably some of the early ones, *S.* Southern Cross, *S.* Shooting Star, and *S.* Otways Sunset. (Table 1)

Hybrids with 25–50% non-classic species in their breeding background clearly fit in the non-classic category, and can sometimes exhibit obvious characteristics of these species even when the percentage drops below 25%. They are generally more difficult to grow than classics, especially in hot and dry summers. Judging requires a different approach to encompass the predicted optimum features based on the breeding. Judging panels can struggle to judge this group, with few guidelines, but the ANOS approach of considering parentage and the whole plant provides scope to recognise outstanding plants. Some preliminary suggested guidelines have been published recently (Adams, 2018). In this article the history and recent breeding with *S. australis* is presented with discussion of results.

Taxonomy

Ronald Gunn, a collector for J.D. Hooker, collected the type specimen of *S. australis* in 1833 at Emu Bay in northern Tasmania. There it grows on *Melaleuca ericifolia* on the Emu River. It was described by John Lindley in 1835 (*Edwards's Botanical Register* 7: sub. T. 1699) and later names included *S. parviflorus* Lindl. 1838, *S. barklyanus* F. Muell 1859, *S. gunnii* F. Muell 1859 (nom. illeg.), *S. pictus* (Lindl.) H.G. Reichb. 1861, *Thrixspermum australe* (Lindl.) H.G. Reichb. 1871 and *S. australis* in 1861. The common name is the butterfly orchid or Gunn's orchid.

Sarcochilus australis is the southernmost species in the genus, occurring in northern Tasmania, Bass Strait Islands, Victoria and commonly up to the mid-north coast New South Wales (Gloucester area), but also towards the border of New South Wales and Queensland in remote locations. It grows on understory hosts in sheltered and shady, cold and cool temperate

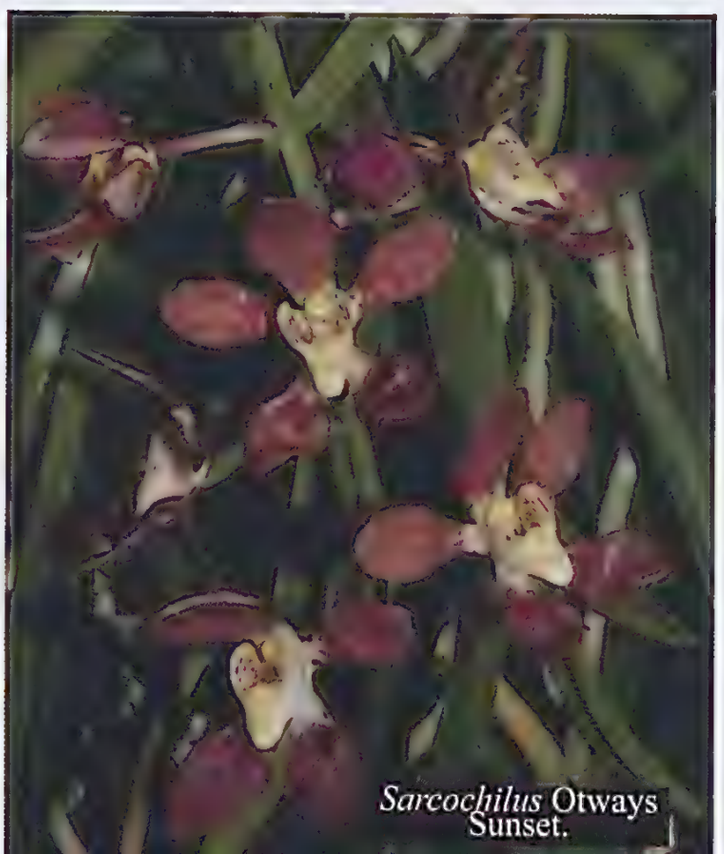
rainforest. The canopy can include *Eucalyptus* and *Acacia melanoxylon*. Many plants are small with a single growth axis, and found on small branches and twigs. In favourable sites larger plants are found on tree trunks and in forks, with multiple leads. There is a high loss rate as twigs fall to the ground, but there is a strong replacement with many small seedlings.

Plants prefer cool conditions where summer temperatures are very even and rarely above 30°C. They enjoy good air movement, dense shade and high humidity, and are often found on moss covered branches with ground ferns below. They have distinctive long, grey-white roots which run along the branches and trunk, and a fan of 3–7 leaves. The racemes are pendulous with up to 16 scented flowers (average 6–10) which develop slowly during the winter, and open from late November to early December in the southern part of the range. Flower colour varies from pale greenish yellow with a contrasting white labellum, to purplish brown and green. The white labellum has purple and yellow markings, with often a lateral purple spot and purple markings on the midlobe. All flowers

Sarcochilus australis habitat 3m above high tide level. North West Tasmania. November.

Sarcochilus australis, North West Tasmania.

Sarcochilus Shooting Star.



Sarcochilus Otways Sunset.

present in one plane, away from the trunk. Seed capsules take 10–12 months to mature.
Reproducing the natural habitat is challenging, even within its distribution area, and long term cultivation is extremely difficult. Plants are usually mounted on tree fern or wood, but rarely survive more than 2–3 seasons. It is most likely that hot and dry summer days are the reason.

Early Hybridising

Hybridising with *S. australis* began in the 1960-1970s with *S. hartmannii* and *S. falcatus*. Wal Upton then bred with *S. fitzgeraldii* and *S. ceciliae* in the 1980s and 1990s, seeking red to mauve flowers. Further breeding was continued by Florafest and Lorraine Fagg, in the Otway series of hybrids. *Sarcochilus* Star Struck (*S.* Southern Cross x *S. fitzgeraldii*) was bred by R.E. Harris and registered in 1989. The seedling 'Red Comet' received AD/ANOS in 1995, with two pendulous racemes of solid red open flowers, but other plants from the same cross were white or spotted with pale mauve. This cross has been used for 13 further hybrids, mainly backcrossing to *S.* Fitzhart or other filled in classic hybrids.

Hybrids made with *Sarcochilus australis*

Sarcochilus Olive Nymph
This cross of *S.* Melba x *S. australis* was made in 1984 because I could not grow *S. australis* in the hot and dry Melbourne summers, and wanted to grow this style of plant. The pod parent of *S.* Melba was large and white, and the *S. australis* was greenish brown with good shape and presentation, from an isolated population at Kinglake north of Melbourne. I repeated the cross several times using different parents, including a pure green form of *S. australis* and high-quality *S.* Melba plants such as 'Sampson'. I grew them all on, and the hundreds of seedlings showed wide variation in plant form reflecting the features of the two parents. Those closest to *S. australis* in growth form with small coloured flowers mostly declined and died quickly, while those most resembling *S.* Melba were more vigorous, and flowered white with red markings. The smaller plants that did not die grew very slowly, often still in a 4 inch pot after 15 years. The vigorous seedlings became relatively large with a single growth for a long time, flowering every year with increasing numbers of racemes, up to six per lead.

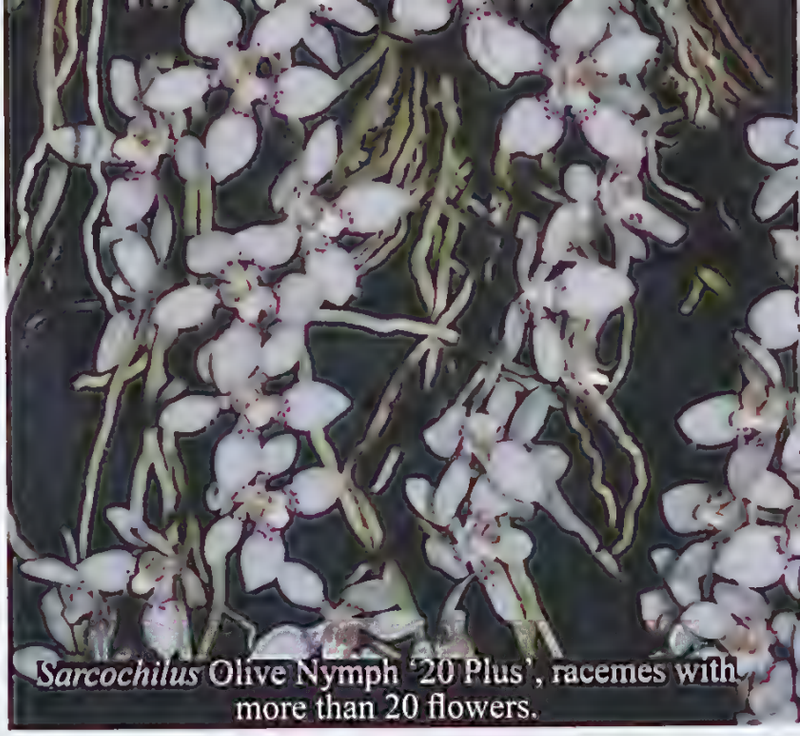
The racemes were arching or pendulous, with all flowers in the same plane like *S. australis*, rather than arranged around the stem. The remaining small growing plants are variously highly coloured with green, green with a grey back, light brown, and some blotched or speckled with red. The roots tend to grow towards the top of the pot and are best suited in my conditions to an open mesh pot, using coarse pine bark and high humidity in summer.

There have been two seedlings awarded. The first was *S.* Olive Nymph 'Australian Bouquet' HCC/AOC 2008, with seven long racemes bearing up to 20 flowers (Table 2). The flowers were not filled in or entirely round, having an open oval shape, because of the 50% *S. australis* background. The flowers have a slightly hooded dorsal sepal and gaps between floral segments, but a striking presentation of long trailing racemes with every flower facing outward in one plane. The cross received an ASR/AOC for 17 seedlings ranging from pure white larger flowers to smaller variously coloured flowers. One small seedling with bright red blotches on a white background grew very slowly for 20 years and was still in a 10 cm pot when awarded in December 2017 as *S.* Olive Nymph 'Wild Strawberries' HCC-AD/ANOS. The AD was awarded for striking colour. I have subsequently remade the cross using more vigorous progeny, with promising results.

Sarcochilus Harold (Heidi x *australis*)
Plants are medium sized, monopodial until mature (seven years), and slow growing. Roots are fleshy and medium sized. Leaves are fanned, 2.8 x 15 cm. Most plants produce several racemes per growth, which appear early in the year, but flower in November. They will do well in mesh pots, and the flowers are usually white with or without some mauve tints.

Sarcochilus Kinglake (George Colthup x *australis*)
Seedlings have been small, slow growing and difficult to culture, perhaps because pots were used and found to be unsuitable compared with

Sarcochilus Olive Nymph 'Australian Bouquet'.



Sarcochilus Olive Nymph '20 Plus', racemes with more than 20 flowers.

Sarcochilus Olive Nymph 'Australian Bouquet'.

Sarcochilus Olive Nymph 'Wild Strawberries' HCC-AD/ANOS 2018.

Sarcochilus Olive Nymph 'Wild Strawberries' in mesh pot.

Sarcochilus Olive Nymph in solid plastic pot.

mounts. Roots prefer to be outside the pot. Flowers are small, attractive, solid red or red spotted on a white background, and small in size.

Sarcochilus Steels Creek (Velvet x *australis*)
Similar results were found to those for *S.* Kinglake. Plants are small growing with small red or red and white flowers which have been difficult to cultivate and easily lost for the same reasons as with *S.* Kinglake.

Sarcochilus Margaret Isaac (Duno Judilly x *australis*)
A surprising result of plants and flowers tending strongly to the *S. australis* parent was evident in the first group of flowering seedlings. The plants were miniatures with delicate pastel mauve flowers, a similar size or a bit larger than *S. australis.*

Sarcochilus Margaret Lee (Elizabeth x *australis*)
These are small plants which resemble *S. ceciliae*, of a single growth with broad leaves of larger dimensions than *S. australis*, with a purple green shade, up to 1.2 x 9 cm. The roots are thick and fleshy. The plants will produce lateral growths if the apex is damaged. Racemes are up to 20 cm with 12 or more flowers. Flowers are small to medium sized and open in shape, with attractive white and red markings, and a relatively broad labellum which may have orange and red markings. Plants require mesh pots with a coarse mix.

Hybrids made with *Sarcochilus* Olive Nymph

Adams and Lawson have registered a number of *S. australis* hybrids since 1989 (Table 3). *Sarcochilus* Olive Nymph has been crossed back to both *Sarcochilus* species and hybrids hoping for vigorous plants with good flower presentation. In general the hybrids are compact plants with arching or pendulous racemes and pastel colours, with flowers presenting in one plane. There have been many attempted crosses that did not produce fertile seed, or very little seed. Fifty per cent or more of the attempts either produce no seed capsule or a capsule that has white fluffy material and no viable seed.
Sarcochilus Russell Lee (Olive Nymph x Heidi)
These are moderately large, slow growing plants. They have a monopodial upright growth. Leaves are large, up to 3.5 x 18 cm and reflex at the apex. The racemes are long and arching or semi-erect, up to 26 cm and producing at least 15 flowers. The roots are thick and fleshy. Flowers are in one plane facing outwards, white to pale mauve, sometimes with a darker mauve flush on the tips. The dorsal sepal is slightly hooded, and the broad labellum is yellow and white. Flowers are rounded but not completely filled in. There have been some seedlings with striking mauve tinted flowers of good quality.

Sarcochilus Edna (Olive Nymph x *hartmannii*)
Plants are medium sized, strong but fairly slow growing with thick fleshy roots. Leaves are 2.7 x 16 cm long. Racemes are arching to pendulous, up to 16 cm long with up to 15 flowers facing outward. Flower colour is commonly white with a brown red central spotted zone. The width of tepals is variable between seedlings.

Sarcochilus Maud (Olive Nymph x Cherie)
Plants are small to medium size, strong but slow growing with fleshy roots. They will produce lateral leads after some years. The leaves are slightly fanned and somewhat narrow, 2.2 x 14 cm, often dark green with a purple tinge. Racemes are up to 26 cm with 12 or more attractive flowers mainly white with red - purple markings.

Sarcochilus Effie (Olive Nymph x Fitzhart)
Plants initially grow slowly but then develop into large plants with fanned leaves and may produce lateral leads when mature. Some plants are very upright, and the roots are thick and fleshy. The fleshy large leaves are up to 4.2 x 16 cm. Multiple arching racemes are up to 24 cm with up to 15 flowers which are in one plane. Flowers are round with rounded tepals, taking after the *S.* Fitzhart, and colour is white to pale mauve, some with deeper mauve blushes. Flower presentation is excellent and of potential award quality. *Sarcochilus* Effie, named after my paternal grandmother, a mentor in practical horticulture, is the strongest grower of the *S.* Olive Nymph hybrids with some of the best flowering examples.

Intergeneric hybrids with *Sarcochilus australis*

There has been very limited breeding and

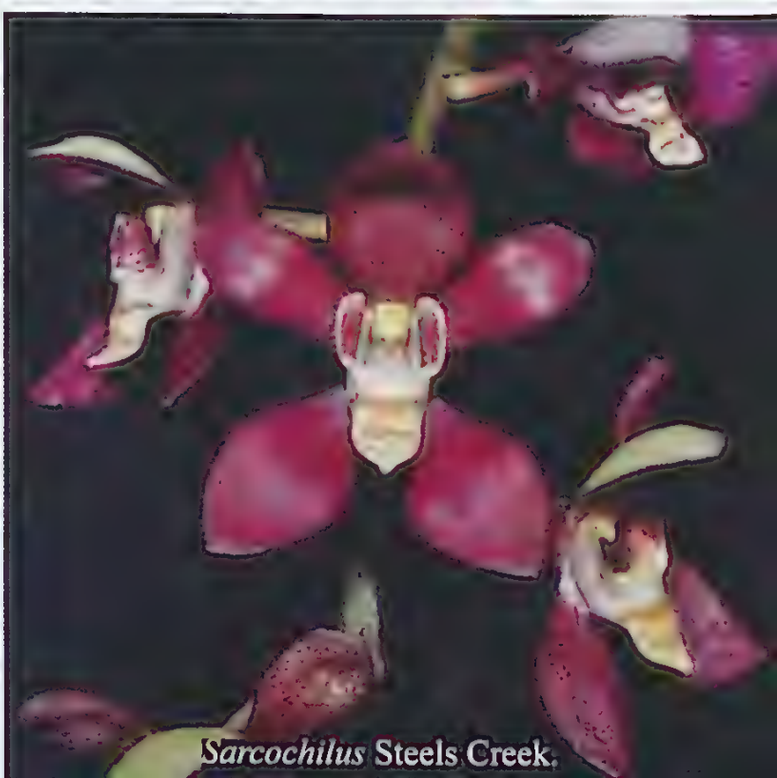
Sarcochilus Effie.

Sarcochilus Russell Lee.

Sarcochilus Harold.

Sarcochilus Edna.

Sarcochilus Kinglake.



Sarcochilus Steels Creek.

Table 1. Hybrids made with *Sarcochilus australis* as one parent.

Year	Other parent	Registered hybrid name	Registrants
1972	*S. hartmannii* (seed)	*S.* Southern Cross	I. A. Butler
1980	*S. fitzgeraldii* (seed)	*S.* Shooting Star	D. Banks
1989	*S.* Mavis (seed)	*S.* Emily	W. T. Upton
1989	*S.* Melba (seed)	*S.* Olive Nymph	P. Adams
1989	*S. ceciliae* (seed)	*S.* Jane	W. T. Upton
1991	*S.* Pinky (seed)	*S.* Penny Ann	W. T. Upton
1992	*S.* Lois (seed)	*S.* Otways	Florafest - L. Fagg
1993	*S.* Arcadia (seed)	*S.* Otways Star	Florafest - L. Fagg
1993	*S.* Fitzhart (seed)	*S.* Otways Sunset	Florafest - L. Fagg
1995	*S.* Marion (seed)	*S.* Otways Gem	Florafest
1997	*S. falcatus* (seed)	*S.* Wongie	R. Currell
1997	*S.* Cherry Derham (seed)	*S.* Otways Sparkle	Florafest - L. Fagg
2009	*S.* Star Struck (seed)	*S.* Austar	S. Harper
2010	*S.* George Colthup (seed)	*S.* Kinglake	P. & S. Adams
2010	*S.* Velvet (seed)	*S.* Steels Creek	P. & S. Adams
2012	*S.* Heidi (seed)	*S.* Harold	P. & S. Adams
2014	*S.* Duno Judilly (seed)	*S.* Margaret Isaac	P. & S. Adams
2014	*S.* Suzette (seed)	*S.* Star Trek	Botanic Ridge Orchids
2014	*S. dilatatus* (pollen)	*S.* Ozzydil	Western Orchids
2015	*S.* Elizabeth (seed)	*S.* Margaret Lee	P. & S. Adams

Table 2. Australian awards for *Sarcochilus australis* - all with pendulous racemes.

Plant Name and Award	Parentage	Colours	Growers or Breeders
S. Star Struck 'Red Comet' AD/ANOS 1995	Southern Cross × *fitzgeraldii*	red	N. Roper
S. Olive Nymph 'Australian Bouquet' HCC/AOC 2008 (Vic.)	Melba × *australis*	white	P. & S. Adams
S. Olive Nymph ASR/AOC 2008 (Vic.)	Melba × *australis*	white, spotted red, red brown	P. & S. Adams
S. Olive Nymph 'Wild Strawberries' HCC-AD/ANOS 2017 (Vic.)	Melba × *australis*	white, purple blotches	P. & S. Adams

Table 3. Hybrids made with *Sarcochilus* Olive Nymph as one parent.

Year	Cross	Registered Hybrid Name	Registrants
2009	*S.* Olive Nymph × *S. hartmannii*	*S.* Edna	P. & S. Adams
2009	*S.* Olive Nymph × *S.* Fitzhart	*S.* Effie	P. & S. Adams
2009	*S.* Olive Nymph × *S.* Cherie	*S.* Maud	P. & S. Adams
2009	*S.* Olive Nymph × *S.* Heidi	*S.* Russell Lee	P. & S. Adams
2018	*S. fitzgeraldii* × *S.* Olive Nymph	*S.* Frank Adams	P. & S. Adams

Table 4. Intergeneric hybrids with *Sarcochilus australis* as one parent.

Year	Other parent	Registered hybrid name	Registrants
2012	*Papillilabium beckleri* (pollen)	*Papillochilus* Little Ripper	Western Orchids - K. Kopiki
?	*Plectorrhiza tridentata*	unregistered	N. Finch (DUNO)
2013	*Plectochilus* Jester (seed)	*Plectochilus* Larrikin	B. Larkin

registration of *S. australis* with other genera, notably with *Plectorrhiza* and *Papillilabium* (Table 4). The results appear to be similar to the mainstream *S. australis* breeding, with pendulous racemes bearing interesting small flowers eg. *Plectochilus* Larrikin by B. Larkin. There is potential for further intergeneric breeding which may produce some new colour combinations.

Limitations and Advantages of Breeding with *Sarcochilus australis*

When crossing *S. australis* with other species and primary hybrids, capsules usually have plenty of seed and mature in 6–9 months. Crossing of the next generation or with classic *Sarcochilus* hybrids involving several generations of breeding has variable success. Many crosses produce viable seed, but others fail to produce a seed capsule or contain little or no viable seed. Like some other genera, *S. australis* hybrids became very difficult to breed with after 3–4 generations. There is better success crossing second generation *S. australis* hybrids back to species such as *S. hartmannii* or *S. fitzgeraldii*, but the seedlings, yet to flower, may not retain the desirable characteristics of flowers in a single plane and floriferousness.

Plants are small and compact and will flower 2–3 years out of flask. There is a wide range of colours from white to deep red-purple, and good prospects of a few green colours, which are relatively uncommon in *Sarcochilus* hybrids. The most outstanding characteristic is the flower presentation, all flowers in one plane and the raceme erect, arching or pendulous. All the flowers stay in one plane for at least two generations, a special characteristic inherited from *S. australis*. This maximizes the effect of the floral display and is particularly striking on arching and long pendulous racemes. Flower count can be over 20 per raceme in mature plants, particularly in hybrids made with *S.* Olive Nymph.

Culture

Hybrids made with *S. australis* generally do best as mounted plants or in open mesh plastic pots as they have long aerial roots and require air movement and high humidity. This applies even more when *S. australis* is crossed with other small epiphytes. If crossed with vigorous hybrids, a wide range of seedlings can be expected, some vigorous and others slow growing and difficult. If the seedlings appear more similar to the hybrid parent they will do well in pot culture, and mesh pots can also be suitable. Potting mixtures should be coarse and well drained. I use 15-20 mm pine bark, more than 50%, with additional small percentages of stone, tree fern fragments or other water-retaining components. No particular ingredient appears to be essential. Low light of around 40-50% is preferable, with high ventilation and high humidity in summer.

Acknowledgements

Tables 1-4 are reprinted with permission from *Orchid Digest*.

References

Adams PB 2018 *Sarcochilus australis* (Lindl.) H.G. Reichb. Non-classic Style Hybrids. *Orchid Digest* 82:3 124-134.

Sarcochilus australis with seed capsules, North West Tasmania.

Dendrobium teretifolium R.Br. - Observations in Queensland

Grant Paterson
tillandsia@hotmail.com

The article by Gerry Walsh (*The Orchadian* 19:7) prompted reflection on my observations of this species in Queensland over the past 30 years. I begin at the New South Wales and Queensland border around Natural Bridge and the lower slopes and escarpment of the Lamington Plateau on the eastern side where *Den. teretifolium* var. *aureum* (syn. *Dockrillia dolichophyllum*) grows abundantly in the upper branches of rainforest trees with *Den. speciosum* var. *hillii*, *Den. gracilicaule*, *Den. tetragonum* var. *tetragonum* and numerous other epiphytic species including *Sarcochilus falcatus*. It can also be found in the steep upper catchments of streams running out of the plateau on *Casuarina cunninghamii* with *Den. monophyllum*, *Den. linguiforme*, *Oberonia complanata* and *O. palmicola*. At lower elevations *Den. teretifolium* var. *aureum* is replaced with *Den. bowmanii*. I have not seen these two species growing together at any location.

Dendrobium teretifolium var. *teretifolium*

I have observed *Den. teretifolium* var. *teretifolium* in drier vine scrubs in the scenic rim from around Cunningham's Gap and north to the area north of the eastern side of the Blackbutt Range east of Yarraman. In many of these locations there are often very few plants outside of the immediate vicinity of the steep rocky drainage lines. West of Yarraman the Hoop Pine scrubs become host to var. *aureum* extending to the Bunya Mountains, where conditions become much wetter and humid. The Obi Obi area is another hot spot where var. *teretifolium* dominates drier scrubs with this trend extending north through the Conondale Ranges, Upper Mary Valley to Brooyar State Forest, west of Gympie. The most frequent hosts in these areas are *Araucaria cunninghamii* (Hoop Pine), *Argyrodendron* sp. (Tulip Oak) and *Brachychiton discolor* (Queensland Lacebark).

In the wetter areas, rainforest may hold specimens of var. *aureum* but I have not seen them in flower to be able to determine which form is present. Access to this area is often difficult due to cessation of commercial logging and the reduced number of access points. I have unconfirmed reports of non-flowering var. *teretifolium* in the Goodnight Scrub west of Bundaberg and have seen a photograph of a form of *Den. teretifolium* growing on a large specimen of *Cycas megacarpa* (Cycad) in a gully, reportedly from this area.

Gerry describes well my observations of var. *teretifolium* from the Kroombit area. Interestingly, no variants of *Den. teretifolium* can be located once the lowlands of central Queensland are reached. Here, remnant vegetation occurs within a good distance of waterways and *Den. bowmanii* grows in abundance and many clumps may be over 1 m in length and 0.75 m in diameter. I have observed var. *teretifolium* flowering in September in a few isolated locations, sheltered from the north and west near Mount Hopeful and north to Struck Oil, in the Mt. Morgan area. It is found in moister gullies in a very dry environment, in both locations growing on *Cycas megacarpa* and *Melaleuca bracteata* (Black Tea Tree.) The plants were relatively small and old with numerous dead stems and only 3–4 live branches with a few leaves. Despite extensive searching, the only terete leafed *Dendrobium* found in the wet Byfield area and north to the Koumala area south of Mackay is *Den. bowmanii*.

Dendrobium teretifolium var. *aureum* F.M. Bail. north from Koumala Range, Queensland

In the elevated areas at Koumala Range, East Funnel Creek, Blue Mountain and Epsom State Forest var. *aureum* is common growing on the upper branches of Tulip Oaks (*Argyrodendron* sp.), *Toona ciliata* (Red Cedar) and other rainforest emergents. *Dendrobium teretifolium* var. *aureum* continues at altitude through the Crediton and Eungella areas to Dicks Tableland and Cathu State Forest. *Casuarina cunninghamiana* growing in the rocky creeks also support this form at altitudes above about 800m elevation. Below about 700m *Den. bowmanii* replaces *Den. teretifolium* in this habitat.

Dendrobium teretifolium var. *teretifolium*, D'Aguilar National Park. Photo D. James.

Dendrobium teretifolium var. *teretifolium* Off-white, large lithophyte D'Aguilar National Park. Photo D. James

Dendrobium teretifolium var. *teretifolium*. Green flowered. Photo P. Adams.

Dendrobium teretifolium var. *teretifolium*. Flowers green to off-white. Photo P. Adams.

Dendrobium teretifolium var. *aureum*. Large form. Photo P. Adams.

Dendrobium teretifolium var. *aureum*. Medium sized flowers. Photo P. Adams.

The colour of var. *aureum* in the area from Koumala Range to Cathu is variable even within a single colony. This area lacks the bright golden yellow forms from further south and has cream to off-white forms with lip markings in purple to maroon and dirty tan in some of the off-white forms. The flower colour of most of these plants is the only difference I have observed from this area, with plants indiscernible from southern forms when out of flower. Plants with similar characteristics occur in the higher elevations of the Conway National Park in the upper catchment of Repulse Creek, and in Dryander National Park in the headwaters of the Gregory River. Difficulty of access to the Whitsunday populations has restricted repeated observations of flowering plants.

In general, var. *aureum* has yellow to off-white coloured flowers and a trend to have fewer flowers (3 to 6 per raceme) than var. *teretifolium* (6–12 or more per raceme). *Dendrobium teretifolium* var. *teretifolium* has white, off-white, pale green and pale yellow flowers with a reddish to brown throat. The plant form is usually pendulous in var. *aureum* and var. *fasciculatum* Rupp, and more variable in var. *teretifolium*, from globular to long and pendulous. In cultivation in Mackay under relatively high light of 50%, all three varieties from very different areas have produced plants with identical long pendulous form, suggesting that plant habit may be related to different conditions in the natural habitat.

Another *Dendrobium teretifolium* complex variant

I have observed a 'pencil orchid' variant with pale lemon coloured open star like flowers with a shorter lip, narrow sepals and petals. These plants are growing on vertical rock faces and roots and trunks of *Schefflera actinophylla* (Umbrella Tree) and *Ficus* sp.(Fig) in the steep headwaters of a small creek near Mutarnee, north of Townsville. This is a wet to very moist sheltered shady environment. Plants in the Wet Tropics World Heritage Area are usually considered to be the domain of *D. teretifolium* var. *fasciculatum*. They did not however fit within the usual range of characters for that variety and are difficult to classify.

Conclusion

I have reviewed my observations on *Den. teretifolium* variants from the border of New South Wales and Queensland to a little north of Townsville, involving var. *teretifolium*, var. *aureum*, and some forms that I am presently unable to classify (Table 1). There is likely to be more variation to study, especially in more remote parts that may not as yet have been surveyed with this species complex in mind. The varieties *teretifolium* and *aureum* are usually recognisable, but there is some overlap in colour and flower number, as indicated above, and also in size characteristics. This means that when flower colour is off white, there are some plants that cannot be reliably assigned to a variety. There is still some work to be done to determine the details of the distribution ranges.

Grant Paterson is an environmental scientist based in Mackay, Queensland with a special interest in orchid species.

Table1. Features of *D. teretifolium* varieties and Mutarnee 'form'.

Variety	Plant form	Flower colour	Relative flower size
var. *teretifolium*	globular-long, pendulous	white – off-white	small-moderate
var. *aureum*	long, pendulous	yellow – off-white	moderate-large
var. *fasciculatum*	long, pendulous	white-cream clusters	moderate-large
Mutarnee 'form'	long, pendulous	lemon	moderate-large

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CONFERENCE TIMETABLE

Friday August 23rd

9.25 am Opening by Chairman of the Conference Dr. Peter Adams

9.30 am Session 1: Warm growing Australian and Australasian epiphytes
Noel Grundon – ANOS and *The Orchadian* – yesterday, today and tomorrow.
Robert Reitano. *Dendrobium* – growing warm sections in sub-tropical and temperate zones.
Peter Adams – A new classification for *Dendrobium bigibbum*.

1 pm Session 2: Cool growing *Dendrobium* species and hybrids
David Cannon – Australian native orchid hybridising – where have we come from?
Callyn Farrell – Australian Dendrobiums – culture and breeding strategies.

Saturday August 24th

9.30 am Session 3: Australian Aeridinae (*Sarcochilus* and allies)
Roslyn Capell – Aeridinae hybrids.
Matt Renner – Getting up close and personal with Australian Aeridinae: a functional perspective on flower morphology.

1 pm Session 4: Australian terrestrial orchids – conservation and culture
Helen Richards – Seasonal Australian terrestrial orchids.
Neil Anderton – Conservation projects for endangered terrestrial orchids.

Sunday August 25th

9.30 am Session 5: ANOS Judging
Dave Groffen – Judging *Dendrobium* section *Spatulata*.
Sheryl Lawson – Judging Aeridinae.
Further speakers TBA.

There will time allowed for extensive discussion at the end of each session.

Cool Growing *Dendrobium* Breeding in Gippsland, Victoria

Text and photos Phil Grech
Bairnsdale, Victoria

I have enjoyed crossing dendrobiums and developing them to specimen plants for more than three decades. After reading the article by Peter Adams on breeding *Dendrobium kingianum* style hybrids I was encouraged to put pen to paper and record some of my breeding.

In The Beginning

I started growing orchids around 33 years ago. A friend who lived in Traralgon, Victoria, gave me a small piece of *D.* × *delicatum*. In the next few years I was compelled to purchase several genera, in which cymbidiums featured heavily. Then I bought some dendrobiums, and a little later some *Sarcochilus*. I started hybridising with cymbidiums for 4–5 years, making around 10–15 crosses, followed by hybridising dendrobiums in about 1989. I wanted to produce *Dendrobium* hybrids that had compact growth habit, were vigorous growers, produced colourful flowers, and had a good shape. In addition I wanted the plants to produce many racemes, so that in a short period (4–6 years), they would develop into nice compact specimens. The colours needed to be bright and showy and bicolours were very desirable. Because of inexperience in the early years my results were not very exciting. After learning a few things from hybridisers such as Neil Finch and Wal Upton I started to have some success, in particular when using hybrids that had *D. kingianum* in their lineage.

Some parents I have used for hybridising are:
D. Tyabb 'Heather'
D. Intice 'Mary'
D. Desert Rose 'Maitland'
D. Nelly Bay 'Rainbow'
D. Nanny Joy 'My Love'
D. Picnic Point 'Beetroot'
D. Killen 'F.T.P.'
D. Glitter 'The Star'
D. Warragul 'Magenta'
D. Finlay 'Rippa'
D. Cassidy 'Maya'
D. Hamilton 'Vicki'
D. Rosy Cheeks 'Julie'
D. Auscobber 'Dark Cherry'
D. Marlo 'Randa'

This is not a full list of parents I have used, but most of these have been successful. Progeny of some of the above parents are *D.* Lookout (Rosy Cheeks x Hamilton), *D.* Marlo (Warragul x Tyabb), D. Maryvale (Warragul x Julia) *D.* Metung (Warragul x *kingianum*), *D.* Keldon (Glamour x Bicentennial Blush), *D.* Finoca (Finlay x *kingianum*), *D.* Tamboon (Finlay x Keldon), *D.* Ensay (Nellie Bay x *speciosum*) and *D.* Bounty (Rosy Cheeks x Tyabb). I have produced a range of plant and flower styles including *Dendrobium kingianum* style based on *D.* Desert Rose, *D.* Finoca, *D.* Finlay, *D.* Marlo, *D.* Metung, *D.* Warragul and *D.* Tyabb, the *D. speciosum* style, and a mixture of the two styles. The mixed style breeding results in medium sized plants with high flower counts and some bright colours including strong yellow with purple – red. One example is *D.* Nanny Joy (Nelly Bay x Cassidy) which I registered in 2013. The next generation was produced by crossing *D.* Nanny Joy with *D.* Auscobber (Cobber x Australian Rose-Beauty) which retains the colours, and with *D.* Avril's Gold which is in the style of that well known hybrid.

Dendrobium Maryvale 'Rita' HCC/ANOS was registered by a colleague R. Gribble in September 2018 after it was considered for a quality award by the Victorian ANOS judging panel. It is necessary for a crossing to be registered to receive the award. The compact plant is still developing to full size and it is notable for upright racemes that present strongly purple splashed flowers to the viewer.

Culture

The potting mix for *Dendrobium* and *Sarcochilus* is ten parts sieved and washed pine bark and one part decomposing granite gravel. I use 12–18 mm bark for large plants, 6–10 mm bark for small plants, and mini bark for deflasking. The gravel should be close to the size of the bark used, including the deflasking mix.

My cultural techniques are a little different from other people. I prefer organic fertilizer as the major part of the fertilizing program. I make a fairly strong horse, sheep or cow manure tea, then dilute it 10 parts water to one part manure

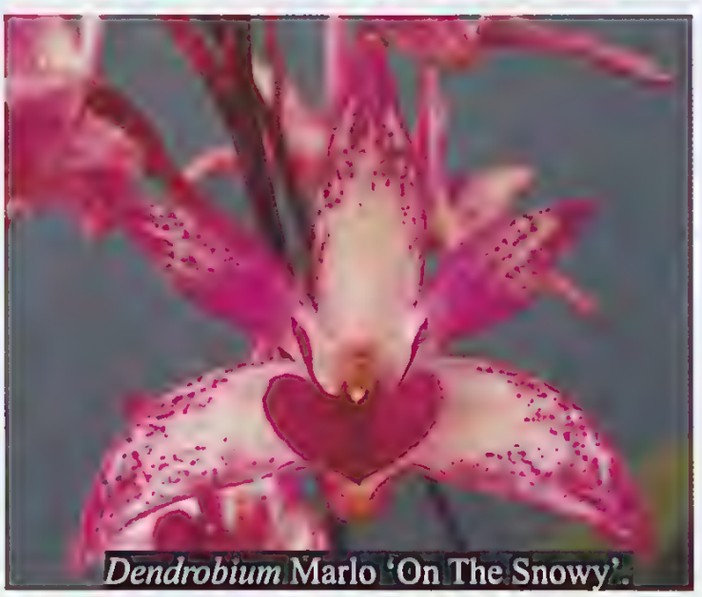
Dendrobium Australian Rose Beauty x *speciosum*.

Dendrobium Bounty 'Freckles'.

Dendrobium Desert Rose x Killen.

Dendrobium Desert Rose x Tyabb.

Dendrobium Lookout 'For Joy'.



Dendrobium Marlo 'On The Snowy'.

Dendrobium Mikado 'Lemon Drop'.

Dendrobium Nanny Joy 'Cutie'.

tea. The plants get this every second watering. In addition I use a small amount of slow release fertilizer, top dressed every six months. When I break up plants or pot them on I spread a few pellets of *Organic Life* just before topping up the pot with pine bark mix. I apply calcium carbonate as top dressing once a year. A good time to apply this is when potting up or breaking up the plants. Be careful, if you are heavy handed with the slow release fertilizer it may burn the roots and also kill essential microbes in the organic technique. I never use commercial liquid fertilizers.

I think that if hobbyists use chemical fertilizers and get heavy-handed with it that within a year the pot will have a salt build-up in the bottom of the pot, leading to root loss. The plant will start to shed leaves, leaving a number of back canes that make the plant look ugly. This does not happen using my technique. My specimen plants have very few or no leafless back canes. Professional nurseries do not have this problem for two reasons. First is that they have a high turnover of plants, and second they have the knowledge on how to apply chemical fertilizers.

The climatic conditions in East Gippsland are very favourable for cool growing dendrobiums. We are not far from the sea and salt water lakes, about 20 km, and the extremes of temperature that occur inland are much less frequent. This produces a longer growing season, with a sea breeze and somewhat higher temperatures in winter. Our flowering results in Gippsland are very impressive compared with western parts of Victoria and our breeding programs have produced excellent plants. Three ANOS awards were given in spring 2018 by the Victorian ANOS judging panel.

After many years, my pleasure in growing and hybridising dendrobiums has not waned. In fact, my plants have given me a positive and enthusiastic outlook on life, especially during periods of ill health. My only wish is to live long enough to see the fruits of my labour.

Phil Grech is a very successful breeder and grower from the Gippsland area in Victoria. He has registered 23 Dendrobium *hybrids since 2000.*

Dendrobium Nanny Joy 'My Love'.

Dendrobium Nanny Joy 'My Love'.

Dendrobium Nanny Joy x Auscobber.

Dendrobium Nanny Joy x Avril's Gold.

Bob Sullivan's *Cymbidium suave*

Text and photos Roslyn Capell
capell666@ozemail.com.au

Cymbidium suave occurs in moist forest and woodland along the east coast of Australia from Bega to Cooktown and is common within its range. It grows in the decaying heartwood of large, old trees, often Myrtaceae. Unlike most cymbidiums, it has no pseudobulbs but has woody stems which continue to elongate and flower for some years. Its long, thick roots penetrate into the rotting interior of the host tree and can travel some metres along the pathways that form as the wood rots. Its grassy clumps of leaves are produced on rhizomes which can also travel along the pathways and emerge through hollows and fissures to produce new clumps of stems and leaves. Seedlings frequently germinate in decaying logs of fallen trees, and also in paddock fence posts made from *Eucalyptus* timber. Those seedlings can grow into sizeable flowering plants, so it is not essential for the species to have a live host tree to do well.

This species has the reputation of being difficult to cultivate, and many people – myself included – have had difficulty establishing a wild-collected plant in a pot after its original, natural, container has disintegrated. Perhaps the lack of pseudobulbs to store water and nutrients means it relies more on its roots to keep it healthy during adverse conditions such as drought and disturbance to its root system. Some years ago, plants of this species bearing salvage tags were sold at various outlets in Sydney, growing in pieces of the original host. I had one such plant and it grew well for a few years, rewarding me with lovely green flowers every summer, until its container eventually, and inevitably, fell apart. The repotting process did not end well for me and my plant but other people have had great success establishing pieces in cultivation and Bob Sullivan, president of Tweed District Orchid Society, is one of them.

About twenty years ago Bob was given a single growth piece of *Cymbidium suave* from an old plant on a family property. Bob has managed to turn that single growth into the magnificent specimen plant seen in the accompanying photograph. This plant flowers in time for the Tweed Orchid Show & Fair on the first weekend of November each year and I have

Cymbidium suave raceme.

Cymbidium suave, rich green quality flowers.

seen its splendid display there every year since 2014. I chose a photo of it from 2015 as it was particularly floriferous that year.

Bob is currently growing this plant in a four foot long (120cm) piece of ten inch (25cm) polypropylene drainage pipe, with a pot screwed to the bottom of it to hold the contents in place. The bottom third is polystyrene pieces, the middle third a mix of polystyrene and bark, and the top third medium bark. The plant is watered every day and fertilised whenever, and with whatever Bob is feeding his other plants. It grows under 50% shade cloth. The plant has only been afflicted by rot once, and Bob successfully treated it with a proprietary product. It was successfully divided a few years ago and Bob has another large piece of the plant coming along.

Seedlings of *C. suave* are said to transplant easily and adapt well to cultivation and flasks can be sourced from a few specialist native orchid nurseries.

Reference:

Jones DL 1988 *Native Orchids of Australia*, Reed Books Frenchs Forest, NSW.

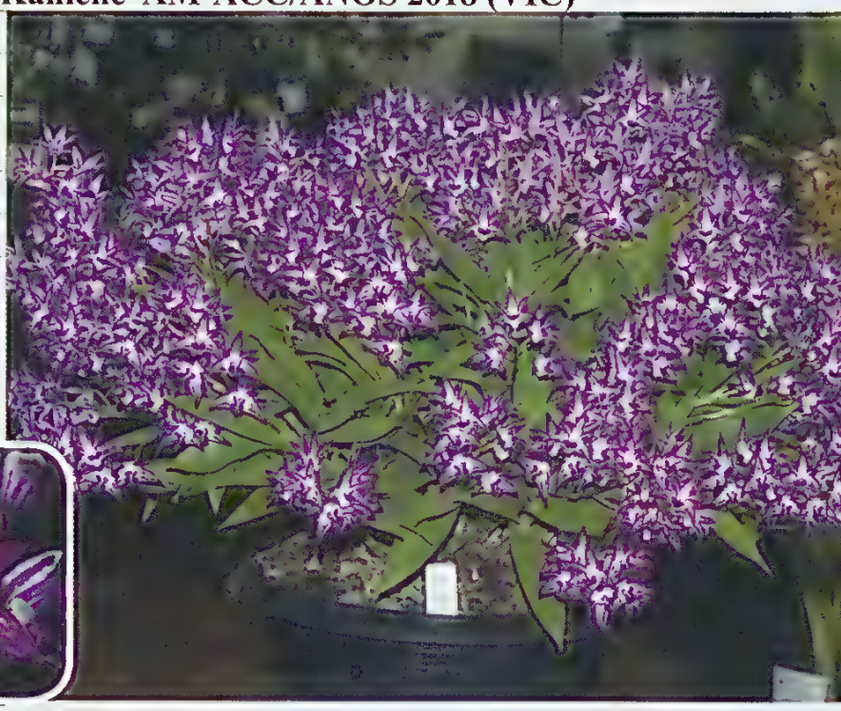
Roslyn Capell is ANOS Inc. Conservation Officer and an ANOS and Australian Orchid Council judge.

Cymbidium suave in habitat, St. Ives, New South Wales

Cymbidium suave, 2015

#326/7 *Dendrobium* Australian Rhubarb Pie 'Kahlene' AM-ACC/ANOS 2018 (VIC)

Points	83.1 ACC 85.3
Owner	Daryl Mills
Date & event	16 September 2018 -
Photos by	Peter Adams
#flowers/inflorescences	1,500 / 125
Measurements(mm):	
flower	39 across 37 vertical
petal	17L 6W
sepal	19L 10W
dorsal	22L 8.5W
labellum	17L 10W
inflorescence length	175
Detailed avge points:	
shape(25)	21.1
colour(20)	16.6
size(15)	11.9
substance/texture(10)	7.8
floriferousness(15)	13.4
habit/attractive(15)	12.3

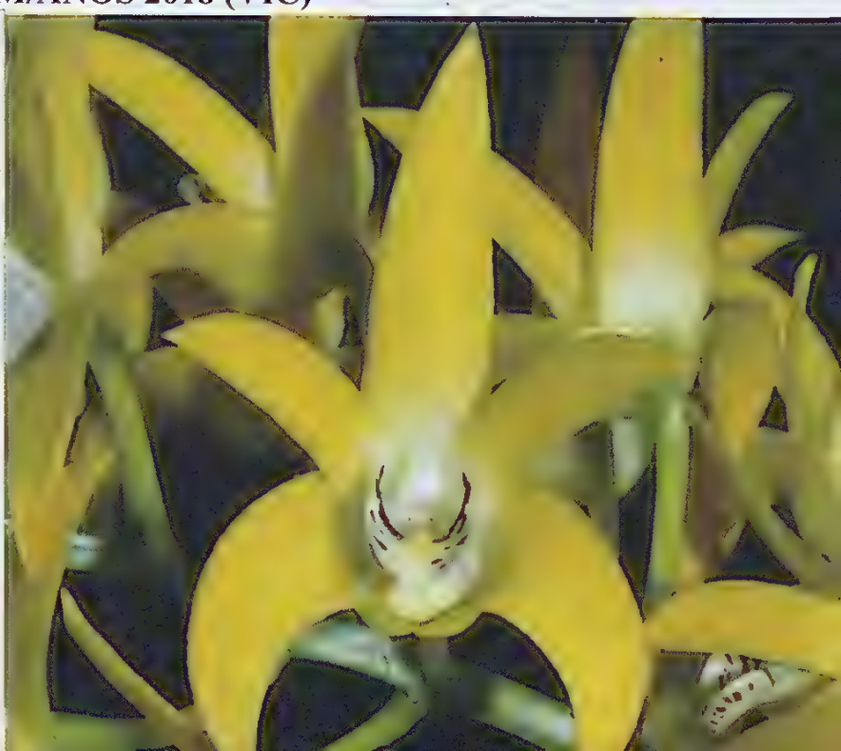


#328 *Dendrobium* Maryvale 'Rita' HCC/ANOS 2018 (VIC)

Points	78.1
Owner	Philip Grech
Date & event	15 September 2018 -
Photos by	Peter Adams
#flowers/inflorescences	63 / 9
Measurements(mm):	
flower	40 across 40 vertical
petal	20L 7W
sepal	12L 10W
dorsal	30L 8W
labellum	11L 10W
inflorescence length	200
Detailed avge points:	
shape(25)	19.4
colour(20)	16.0
size(15)	11.6
substance/texture(10)	7.4
floriferousness(15)	12.0
habit/attractive(15)	11.7

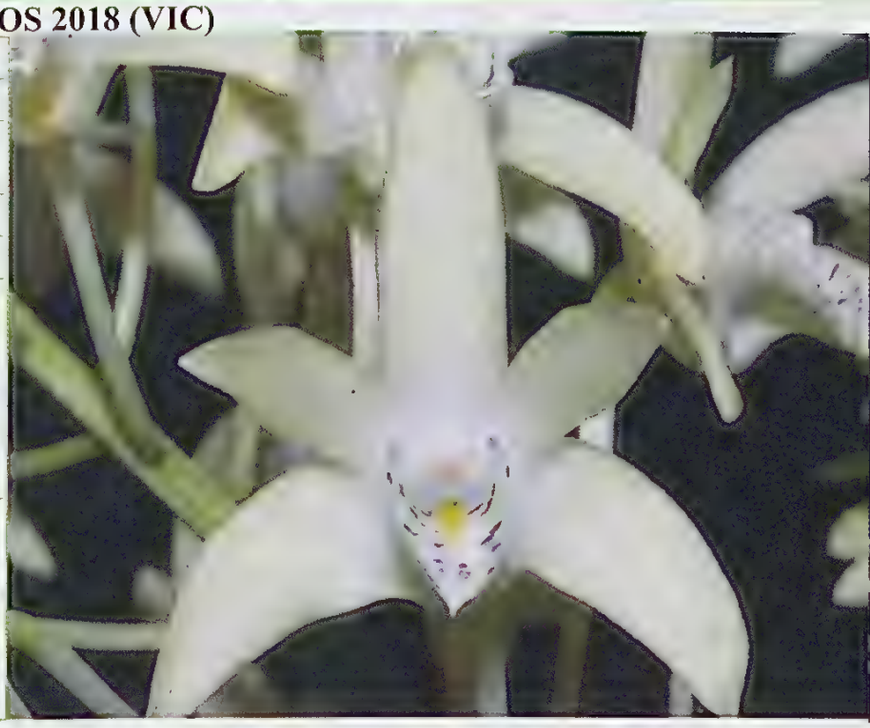
#329 *Dendrobium* Midas Touch 'Sydenham' AM/ANOS 2018 (VIC)

Points	80.9
Owner	Michael Drobski
Date & event	14 September 2018 special judging
Photos by	Peter Adams
#flowers/inflorescences	78 / 4
Measurements(mm):	
flower	45 across 60 vertical
petal	26L 6W
sepal	25L 12W
dorsal	34L 10W
labellum	11L 9W
inflorescence length	250
Detailed avge points:	
shape(25)	20.3
colour(20)	16.9
size(15)	12.1
substance/texture(10)	8.1
floriferousness(15)	11.6
habit/attractive(15)	11.9



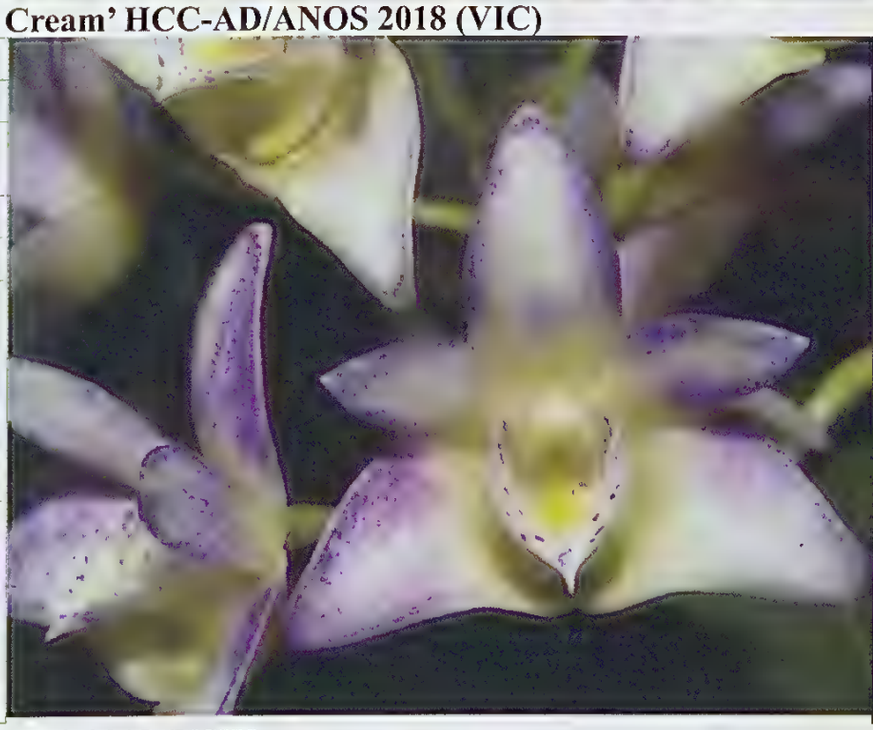
#330 *Dendrobium* Yarra Glen 'Tall' HCC/ANOS 2018 (VIC)

Points	77.2
Owner	Peter & Sheryl Adams
Date & event	6 October 2018 ANOS Mel.Suburbs Show
Photos by	Peter Adams
#flowers/inflorescences	87 / 4
Measurements(mm):	
flower	35 across 37 vertical
petal	24L 8W
sepal	25L 10W
dorsal	23L 9W
labellum	15L 10W
inflorescence length	230
Detailed avge points:	
shape(25)	19.2
colour(20)	15.6
size(15)	12.1
substance/texture(10)	8.0
floriferousness(15)	10.6
habit/attractive(15)	11.6



#331/2 *Dendrobium* Yarra Song 'Peaches and Cream' HCC-AD/ANOS 2018 (VIC)

Points	79.2
Owner	Peter & Sheryl Adams
Date & event	6 October 2018 ANOS Mel.Suburbs Show
Photos by	Peter Adams
#flowers/inflorescences	70 / 8
Measurements(mm):	
flower	32 across 30 vertical
petal	15L 7W
sepal	17L 9W
dorsal	18L 9W
labellum	13L 8W
inflorescence length	125
Detailed avge points:	
shape(25)	19.0
colour(20)	16.6
size(15)	11.9
substance/texture(10)	8.1
floriferousness(15)	11.8
habit/attractive(15)	11.8

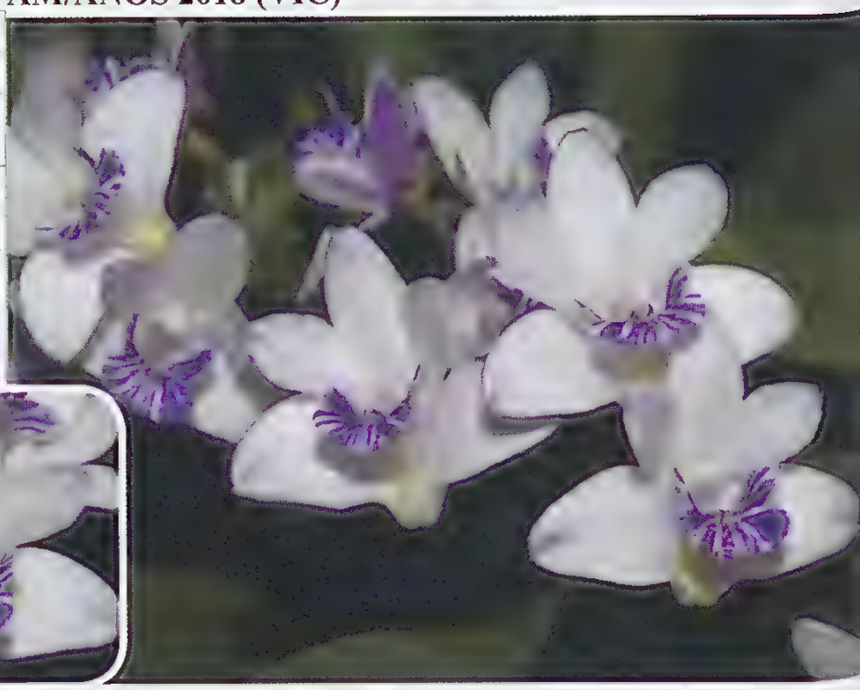


#333 *Dendrobium calamiforme* 'Trish' HCC/ANOS 2018 (NSW)

Points	78.9
Owner	Emil Dallmer
Date & event	12 October 2018 -
Photos by	Bill Dobson
#flowers/inflorescences	350 / 35
Measurements(mm):	
flower	45 across 40 vertical
petal	34L 2.5W
sepal	32L 3.5W
dorsal	38L 3.4W
labellum	26L 4W
inflorescence length	50
Detailed avge points:	
shape(25)	19.5
colour(20)	16.2
size(15)	11.5
substance/texture(10)	7.6
floriferousness(15)	13.3
habit/attractive(15)	10.8

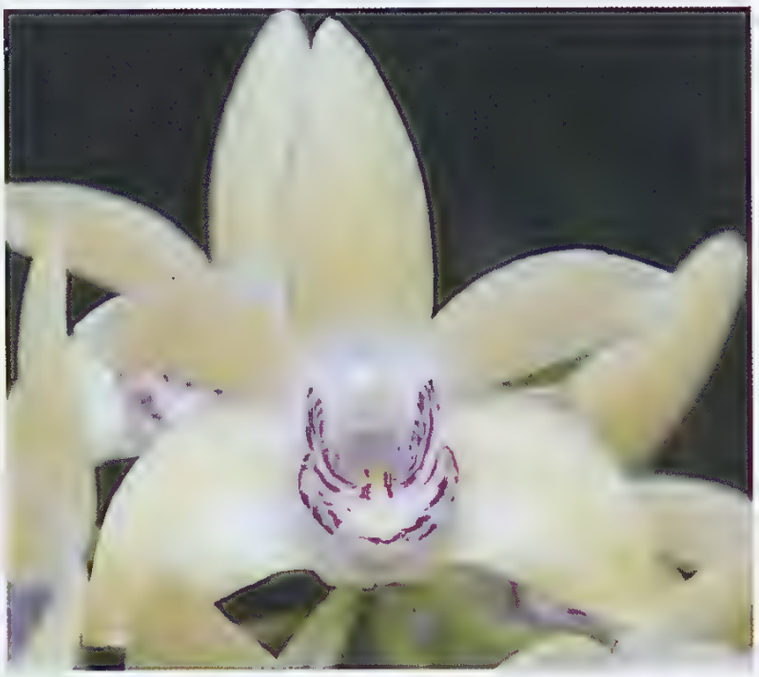
#324 *Dendrobium kingianum* 'Jacques Miller' AM/ANOS 2018 (VIC)

Points	82.1
Owner	Peter & Sheryl Adams
Date & event	6 October 2018 ANOS Mel. Suburbs Show
Photos by	Peter Adams
#flowers/inflorescences	130 / 36
Measurements(mm):	
flower	32 across 29 vertical
petal	17L 9W
sepal	17L 9W
dorsal	15L 10W
labellum	9L 11.5W
inflorescence length	111
Detailed avge points:	
shape(25)	20.6
colour(20)	16.8
size(15)	12.6
substance/texture(10)	8.3
floriferousness(15)	12.0
habit/attractive(15)	11.8



#335 *Dendrobium* David Adams 'Golden Lanterns' HCC/ANOS 2018 (VIC)

Points	77.7
Owner	Peter & Sheryl Adams
Date & event	22 October 2018 Yarra Valley OS Show
Photos by	Peter Adams
#flowers/inflorescences	67 / 7
Measurements(mm):	
flower	38 across 38 vertical
petal	23L 7W
sepal	20L 14W
dorsal	23L 10W
labellum	14L 10W
inflorescence length	140
Detailed avge points:	
shape(25)	19.6
colour(20)	15.8
size(15)	12.1
substance/texture(10)	7.8
floriferousness(15)	11.4
habit/attractive(15)	11.0



#336 *Dendrobium kingianum* 'Dragon Knight' HCC/ANOS 2018 (VIC)

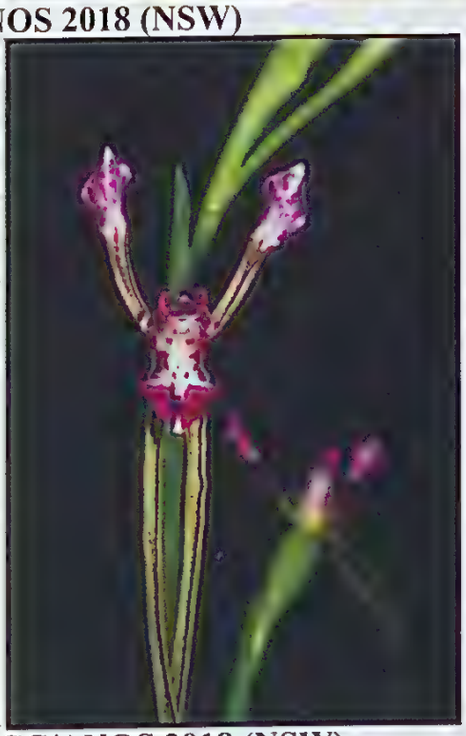
Points	78.8
Owner	Peter & Sheryl Adams
Date & event	22 October 2018 Yarra Valley OS Show
Photos by	Peter Adams
#flowers/inflorescences	51 / 14
Measurements(mm):	
flower	32 across 29 vertical
petal	16L 5W
sepal	18L 14W
dorsal	17.5L 7W
labellum	15L 11W
inflorescence length	120
Detailed avge points:	
shape(25)	20.2
colour(20)	16.0
size(15)	11.6
substance/texture(10)	7.4
floriferousness(15)	11.6
habit/attractive(15)	12.0

#337 *Sarcochilus falcatus* 'Judy' ACC/ANOS 2018 (NSW)

Points	86.6
Owner	John Douglas
Date & event	12 October 2018 -
Photos by	Bill Dobson
#flowers/inflorescences	95 / 20
Measurements(mm):	
flower	30 across 30 vertical
petal	15L 7W
sepal	16L 7W
dorsal	16L 7.5W
labellum	8.5L 7W
inflorescence length	50
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	

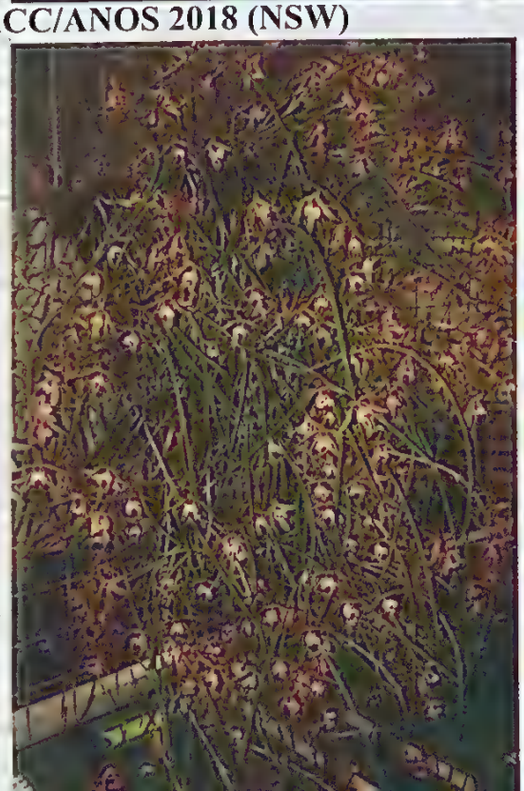
#338 *Diuris parvipetala* 'Windemere' CBR/ANOS 2018 (NSW)

Points	n/a
Owner	Greg Steenbeeke
Date & event	27 October 2018 -
Photos by	Greg Steenbeeke
#flowers/inflorescences	3 & 5 buds / 1
Measurements(mm):	
flower	17.5 across 88 vertical
petal	15L 4.5W
sepal	80L 2W
dorsal	11.5L 5.3W
labellum	8.5L 5.2W
inflorescence length	440
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	



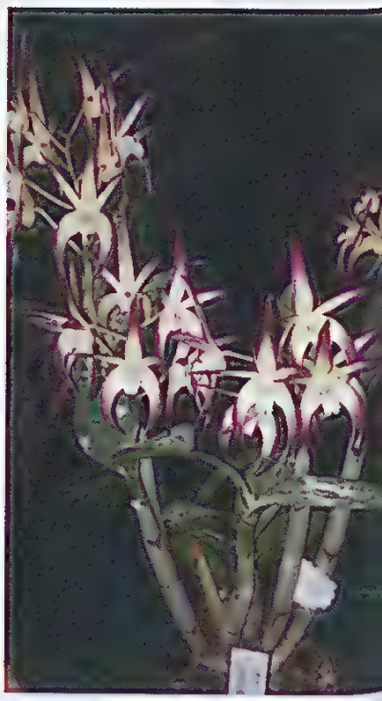
#339 *Dendrobium* Australian Ginger 'Golly ACC/ANOS 2018 (NSW)

Points	84.0
Owner	Yin & Sau-Wan Chan
Date & event	8 September 2018 -
Photos by	Greg Steenbeeke
#flowers/inflorescences	350 & 12 buds / 130
Measurements(mm):	
flower	36.5 across 27.3 vertical
petal	19.3L 4.8W
sepal	16.4L 5.1W
dorsal	18.3L 5.3W
labellum	13L 10.2W
inflorescence length	48
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	



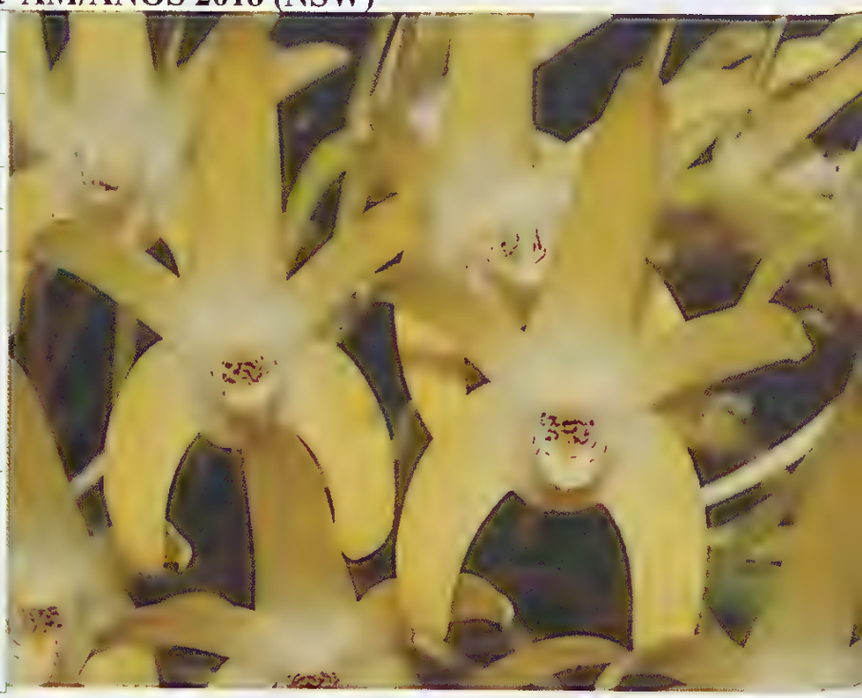
#340 *Dendrobium* Copperhead Road 'Marcus' AM/ANOS 2018 (NSW)

Points	80.7
Owner	John Hurst
Date & event	8 September 2018 -
Photos by	not recorded
#flowers/inflorescences	27 / 4
Measurements(mm): flower petal sepal dorsal labellum inflorescence length	 58 across 88 vertical 42L 6W 40L 7W 52L 9W 18L 10W 111
Detailed avge points: shape(25) colour(20) size(15) substance/texture(10) floriferousness(15) habit/attractive(15)	 20.3 15.4 12.4 7.6 12.1 12.9



#341 *Dendrobium speciosum* 'Goldimoon Best' AM/ANOS 2018 (NSW)

Points	81.4
Owner	George Oehm
Date & event	8 September 2018 -
Photos by	not recorded
#flowers/inflorescences	1,330 & 10 buds / 16
Measurements(mm): flower petal sepal dorsal labellum inflorescence length	 32 across 39 vertical 22.6L 4.1W 25.4L 7W 25.5L 7W 10.7L 5.5W 410
Detailed avge points: shape(25) colour(20) size(15) substance/texture(10) floriferousness(15) habit/attractive(15)	 20.0 17.4 10.7 8.0 12.7 12.6



#342/3 *Dendrobium lichenastrum* 'Clare' HCC-ACC/ANOS 2018 (NSW)

Points	78.8 ACC 81.3
Owner	William Hoogwerf
Date & event	20 October 2018 -
Photos by	-
#flowers/inflorescences	15 & 8 buds / 23
Measurements(mm): flower petal sepal dorsal labellum inflorescence length	 9.8 across 8.8 vertical 3.3L 2.1W 6.0L 4.6W 3.4L 3.8W 6.0L 3.0W 2
Detailed avge points: shape(25) colour(20) size(15) substance/texture(10) floriferousness(15) habit/attractive(15)	 19.3 16.0 11.4 8.0 12.0 12.1

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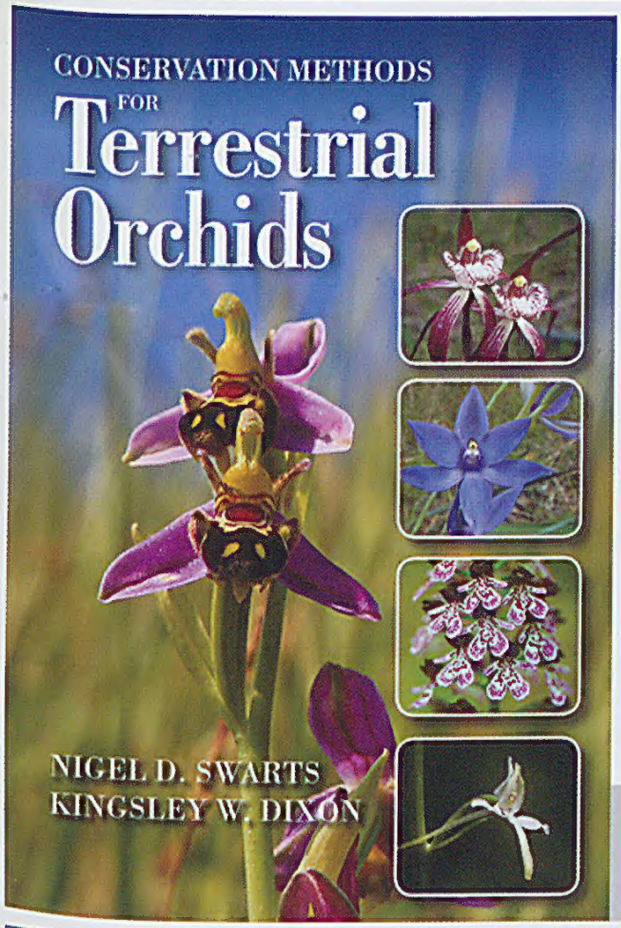

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Native Orchid Society of Toowoomba Show
14-17th August 2019. The Ridge Shopping Centre, Hume Street, Toowoomba.

ANOS Central Coast Spring Show
16-18th August 2019. Narara Valley Nursery, 2 Manns Road, Narara 2250. 9 am to 4 pm.

Ninth ANOS Conference and Show 'Get Going, Get Growing'
21-26th August 2019. Strathpine Community Centre Brisbane.

ANOS Kabi Group Inc. Spring Show This is replaced by the ANOS Conference & Show for 2019.

ANOS Far North Coast Group
29-31st August 2019. Bunnings, Ballina.

***Dendrobium Speciosum* Spectacular & Australasian Species & Hybrid Show Kempsey**
30th August to 1st September. Kempsey Dirt Bike Track, Greenhill via Kempsey.

ANOS Newcastle Spring Show
7-8th September 2019. Windale Bowling Club, 2A Lake Street, Windale. 10 am to 4 pm.

ANOS Warringah Spring Show
7-8th September 2019. Forestville Memorial Hall, Starkey St., Forestville 2087 Saturday 9 am to 4 pm, Sunday 9 am to 3 pm.

ANOS Illawarra Spring Show
14-15th September 2019. Old Courthouse, Cliff Road, Wollongong 2500. Saturday 9 am to 4 pm, Sunday 9 am to 3 pm.

ANOS Sydney Group Spring Show
14-15th September 2019. Kellyville Village Shopping Centre, 90 Wrights Road, Kellyville.

Wyong Spring Show
14-15th September 2019. Wyong Race Club, Wyong.

The Native Orchid Society of South Australia Show
14-15th September 2019, St Bernadettes Primary School Hall, Main South Road, St Mary's. 10am to 4 pm both days.

ANOS Macarthur Spring Show
28th September 2019. Oran Park Podium, Oran Park. 9 am.

ANOS Victoria Inc. Annual Show
28-29th September 2019. Mount Waverley Community Centre, 47 Miller Crescent, Mount Waverley. 9 am to 4 pm both days.

ANOS Melbourne Suburbs Inc. Spring Show
Saturday 5th October 2019. Montrose Town Centre, 935 Mount Dandenong Tourist Rd, Montrose. 10 am to 4 pm (plant sales from 9.30 am).

ANOS Illawarra Late Spring Show
12-13th October. 2019 Old Courthouse, Cliff Road, Wollongong 2500. Saturday 9 am to 4 pm, Sunday 9 am to 3 pm.

ANOS Central Coast Late Spring Show
12-13th October 2019. Narara Valley Nursery, 2 Manns Road, Narara 2250. 9 am to 4 pm.

ANOS Newcastle *Sarcochilus* Show
19-20th October 2019, Windale Bowling Club, 2A Lake Street, Windale 2306. Saturday & Sunday 10 am - 4 pm.

ANOS Sydney Group Sarcanthinae Native Orchid Show
19-20th October 2019. Kellyville Village Shopping Centre, 90 Wrights Road, Kellyville.

ANOS Macarthur October Show
26th October 2019. Intersection Oran Park Drive & Peter Brock Drive, Oran Park. 9 am - 4 pm.

ANOS Geelong Show
Sat. 9th November 2019. Christ Church Geelong, 57 McKillop St., Geelong. 9 am to 4 pm.

ANOS Sydney Native Cymbidium Celebration
14th November. Baulkham Hills Community Ctre, 15 Conie Ave, Baulkham Hills. 8 pm to 10 pm.

Sarcochilus Harold
Photo Peter Adams.